Professional paper
Стручни рад
UDC: 639.2.04:637.5(560)
DOI: 10.7251/AGREN1604371Y

University of Banjaluka, Faculty of Agriculture
Agro-knowledge Journal

Employment and Problems in Turkish Aquaculture Industry

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Abstract

Technical staff employment at fish farms is regulated by legislations and circulars in Turkey. However, it is frequently observed that those rules are not followed. This study deals with the resources of aquaculture production in Turkey and the actual employment situation in this area. Besides, current and ideal employees' numbers were compared and current and ideal aquaculture engineers' numbers in aquaculture industry were quoted. In this context, actual production, costs and fixed capital investment and sales over the last decade were assessed in relation to employment. The conclusion is that the employment problems related to the qualified workers will continue to increase in the coming years.

Key words: aquaculture, sector, employment, fisheries, worker

Introduction

Fisheries industry covers marine and freshwater organisms, rational and sustainable using of these sources, inshore and offshore fishing and aquaculture. It also includes cooperative, ecological, seafood processing and integrated facility, protection of fresh cooled and frozen seafoods and their marketing and wholesale fish market halls. Research, technical development and education in all those areas are fundamental in the fishery sector, being a significant one in Turkey, as it meets the animal protein demand of the country. At the same time, seafood is the only product exported to EU. Qualified workers should be employed to obtain sustainability of the fisheries. In the present study, the current situation regarding a technical staff employment in the sector was examined and recommendations were given to resolve the problems indicated previously.

Material and Methods

Main materials of this research are the regulations regarding employment of aqua culture engineers and literature research on the subject. Various articles, reports and statistics were used. Information on latest developments was researched and data from reports of the Ministry of GTH were used. Data was also gathered through interviews and mails with institutions in Turkey. The necessity and lack of qualified workers in aquaculture sector was studied. The production in the particular sector was also studied, as well as the legal bases of aquaculture engineer employment in terms of import and export, legal source of management structure and application mechanism. Additional regulations on aquaculture engineers and quality standards of the sector were investigated.

For that purpose, fish farms were investigated in terms of whether they employ aquaculture engineers or not. Data gathered from those farms were used to find differences in productivity and effects of employment of aquaculture engineers on productivity. Publications and reports of DPT, GTHB, TÜİK, BSGM, İŞKUR, SÜYÜMB, SÜYB were used for the collection of data. Directors and technical personnel of fishing farms were interviewed, while some ideas on employment of aquaculture engineers in this sector were collected too.

Results and Discussion

Fisheries Sector in Turkey

Turkey has 8333 km coastal line and over 20 million hectares of potential agricultural area (Tab. 1). It has 500 species in its seas and 320 species in fresh water sources. Nearly 100 of those species are economically valuable.

Tab. 1. Fishery Potential of Turkey
Потенцијали за производњу рибе у Турској

Source *Извор*	Number of species *Број врста*	Area (ha) *Површина (ha)*
Marine / *Море*	4	24 607 200
Lake / *Језеро*	200	906 118
Reservoir / *Акумулација*	293	460 441
Pond / *Рибњак*	1000	28 000
Total / *Укупно*	1497	26 001 759

Source: GTHB, 2015

Total production, as an output of aquaculture and fishing which have been the basis of fisheries production in the last decade, is given in Tab. 2.

Tab. 2. Total fishery production of Turkey in the last decade (TÜİK, 2014)
Укупна производња рибе у Турској у посљедњој деценији (TÜİK, 2014)

Year *Год.*	Fisheries / *Рибарство*				Aquaculture / *Аквакултура*		Total *Укупно*
	Marine *Море*	%	Inland water *Копнене воде*	%	Quantity *Количина*	%	
2004	504.897	78.3	45.585	7.1	94.010	14.6	644.492
2005	380.381	69.8	46.115	8.5	118.277	21.7	544.773
2006	488.966	73.9	44.082	6.7	128.943	19.5	662.103
2007	589.129	76.3	43.321	5.6	139.873	18.1	772.323
2008	453.113	70.1	41.011	6.3	152.186	23.5	646.310
2009	425.275	68.2	39.187	6.3	158.729	25.5	623.191
2010	445.680	68.2	40.259	6.2	167.141	25.6	653.080
2011	477.658	67.9	37.097	5.3	188.790	26.8	703.545
2012	396.322	61.5	36.120	5.6	212.410	32.9	644.852
2013	339.047	55.8	35.074	5.8	233.394	38.4	607.515
2014	266.078	49.5	36.134	6.7	235.133	43.8	537.345

Source: www.tuik.gov.tr/temelistatistikler/18.02.2016

In 2014, in the fish production of 537.345 tons in Turkey, 20 100 ships participated (Tab. 3), most of which placed in marine and 2 291 fish farms (Tab. 4), 82,2 % of which produce inland water fish.

The mentioned numbers were reduced to 15 680 for sea and 3 106 for inland water resources because of the ship buying program that aims at reducing the number of filo. Turkey has cut back 1011 ships, to reduce pressure on fish stocks that is a result of mass catch, in terms of unison with the EU (GTHB, 2015).

Tab. 3. Number of fishing vessels and their dimensions
Број рибарских бродова и њихове димензије

Length (m) *Дужина (m)*	0 to 4.9	5 to 7.9	8 to 9.9	10 to 11.9	12 to 14.9	15 to 19.9	20 to 29.9	30 to 49.9	50+	Total *Укупно*
Marine *Морски*	844	10 414	3 058	814	695	426	522	218	7	16 998
Inland water *Копнене воде*	288	2 477	236	28	59	14	0	0	0	3 102
Total *Укупно*	1 132	12 891	3 294	842	754	440	522	218	7	20 100

Source: BSGM, 2015

Tab. 4. Number of fish farms in Turkey (without farms with preliminary permission)
Број рибљих фарми у Турској (без фарми са прелиминарном дозволом)

Source *Извор*	Number *Број*	Capacity (t/year) *Капацитет (t/год)*
Inland / *Копнене*	1 883	242 322
Marine / *Морске*	408	193 420
Total / *Укупно*	2 291	435 742

Source: BSGM, 2015

Turkey has a rapid growth rate especially in aquaculture (11%). It is in the 3rd place among the EU countries in terms of aquaculture of trout, labrax and bream. 115. 682 tons were exported in 2014 with a value of 675 844 523 $.

Employment in Fisheries Sector

Turkey declared a regulation on 29th June 2004 entitled Employment of Technical Personnel in Aquaculture Businesses aimed at unifying its regulation with the EU one. According to that regulation:

- Technical personnel, who graduated from faculties with at least 4 years of education on aquaculture, have to be employed in aquaculture businesses. The number of technical staff is defined by the ministry according to the capacity. A member of the staff will be a technically responsible manager.

- At least one technical member of staff has to be employed in incubation places without evaluation by capacity, who is employed as a technically responsible manager.

- If the owner of business competencies is a member of technical personnel, he/she will be accepted as technical staff.

- Provincial Directorate of Agriculture has to be informed about the employment of technical personnel and responsible managers in active aquaculture businesses for the period of six months.

- Aquaculture and incubation businesses to be established have to employ technical personnel before they start a business.

- The declared capacity for new starting businesses and the capacity declared for active businesses in supervision reports will be held as the base to determine the number of technical personnel. For the following years the capacity declared in supervision reports will be held as the base.

According to the number of employment positions in the sector, 54.4% of workplaces have employed 1 and 2-3 laborers (Fig. 1).

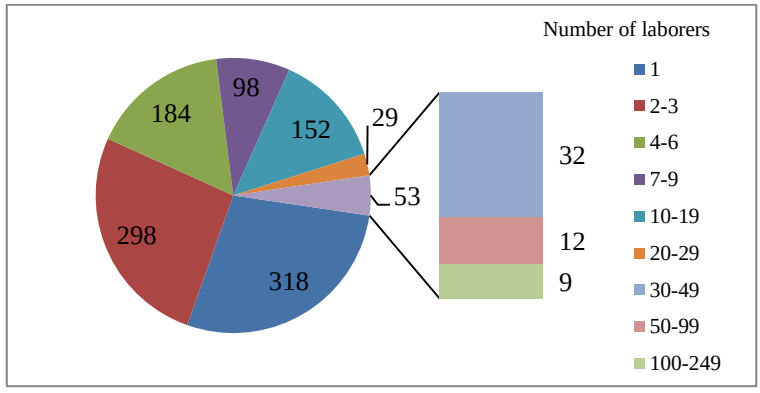

Fig. 1. Number of fishery facilities by number of laborers (SGK, 2012)
Број рибарских постројења у односу на број радника

According to inquiries, Muğla province is the first in aquaculture in terms of the number of facilities (24%) and employment. İzmir province is the second in terms of the number of facilities (6%). Others are Antalya, Elazığ, Samsun, Trabzon, respectively. But, İzmir, Elazığ, Antalya follow Muğla province in terms of the employment (SGK, 2012). There is an increase in employment at farms with the production capacity of 50 tons and more with parallelism in yield (Tab. 5).

Tab. 5. Number of fishery workplaces and employment grade (in farms with the production capacity of 50 tons and more)
Број радних мјеста у рибарству и степен запошљавања (у фармама са капацитетом производње 50 тона и више)

Year *Год.*	Number of workplaces *Бр. радних мјеста*	Annual workplace increment (%) *Годишње увећање (%)*	Number of insured workers *Бр. осигураних радника*	Annual insured workers increment (%) *Годишње увећање (%)*
2012	1 132	15.27	8 846	8.46
2011	982	16.49	8 156	23.74
2010	843	17.08	6 591	25.45
2009	720	8.93	5 254	-0.19
2008	661	-	5 264	-

Source: SGK, 2012

Employment at fish farms is regulated by legislation and circulars in Turkey. Fish farms have to employ a different number (Table 6) of technical staff (aquaculture engineer) who graduated from a four-year faculty, depending on their production capacity. The regulation was changed, parallel with the changes and needs in the sector, by another regulation officially published on the news on 15 October 2005, numbered 25967. New regulations are given below. According to the change, technical personnel, who graduated from faculties that give at least 4 years of education on aquaculture or technical personnel who worked for state on aquaculture, have to be employed in aquaculture businesses. The number of technical staff according to the capacity is given in Tab. 6.

Tab. 6. Minimum number of technical staff employed at fish farms
Минималан број потребног техничког особља на рибљим фармама

Type of farm *Врста фарме*	Number of technical staff that should be employed *Потребан број техничког особља*
Hatcheries / *мрестилишта*	Min. 1
50-249 t	Min. 1
250-499 t	Min. 2
500-749 t	Min. 3
750-999 t	Min. 4
Over 1000 t	Min. 5

Source: Official news dated 15/10/2005 and numbered 25967

Active businesses have to employ technical personnel who have competencies defined in the regulation in six months. To employ technical personnel who worked for state, official letters will be accepted. Based on this information, it could be said that 2 948 engineers could be employed by 2 910 (including farms with preliminary permission) fish farms which are placed in Producer Central Union of Aquaculture Breeders records (Tab. 7).

Between the 1992 when the first faculty of fisheries was opened and 2012, approximately 33.000 people graduated from faculties as Aquaculture Engineer.

Tab. 7. Number of engineers who could be employed by fish farms (including farms with preliminary permission)
Број инжењера који се могу запослити у рибљим фармама (укључујући фарме са прелиминарном дозволом)

Type of Facility *Врста постројења*	Number of Farms *Број фарми*	Number of engineers *Број инжењера*
Inland water fish farms / *Копнене рибље фарме*	2 391	2 057
Marine fish farms / *Морске рибље фарме*	519	891
Total / *Укупно*	2 910	2 948

Source: SÜYÜMB, 2014

According to the Republic of Turkey's Ministry of Food, Agriculture and Livestock, however, only 602 engineers are employed in public offices. Additionally, 2 948 engineers have to be potentially employed by fish farms. Totally, 3 550 Aquaculture Engineers could be employed at fish farms and public offices of the Ministry of Food, Agriculture and Livestock. This rate is just 10% of Aquaculture Engineers in Turkey.

Considering the income and expenditures of Turkish fishery activities, it is seen that expenditures have incremented in the last 4 years and fixed capital investment and sales have decremented in the last two years (Fig. 2).

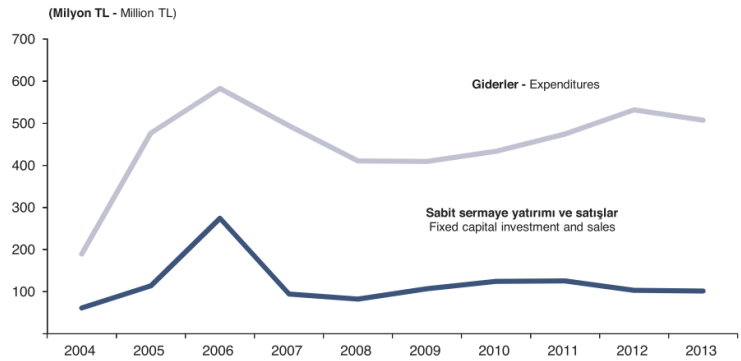

Fig. 2. Fishery activities: fixed capital investment and sales, expenditures (TÜİK, 2014)
Рибарске активности: фиксна капитална улагања и продаја, расходи

This indicate that the problems which are present in employment of technical staff in aquaculture sector in Turkey may increasingly continue in the following years.

Conclusion

Aquaculture production has been growing in fish farms where aquaculture engineers are mostly employed year after year. Nevertheless, employment of aquaculture engineers is not sufficient. Neither increment of production expenditures nor decrement of fixed capital investment and sales may give us promising news. For the development of aquaculture, the following targets have been set in the tenth five-year development plan of the Republic of Turkey:

- Awareness of consumers will be raised, consumption of animal products and seafood will be expanded;
- Resource management of fisheries will be carried out in an effective manner based on scientific data;
- In aquaculture: environmental sustainability will be considered, competitiveness in the international market will be increased with variety of products and branding.

Recommendations that could pave the way for employment and high quality production:

- New markets should be sought for better marketing of products;
- The best quality fish foods should be produced;
- Offshore and deep waters, with less pathogens, pesticides and heavy metal loads, should be preferred for marine fish production;
- New technology should be used in aquaculture.

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Запошљавање и проблеми у аквакултурној индустрији у Турској

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Сажетак

Запошљавање техничког особља у рибљим фармама је у Турској регулисано законима и подзаконским актима. Међутим, често се установљава непоштовање ових прописа. Ово истраживање се бави анализом ресурса у аквакултурној производњи у Турској, као и тренутним питањем запошљавања у овој области. Осим тога, постојећи и потенцијални број запослених су поређени, а анализиран је и постојећи и потенцијални број инжењера пољопривреде у аквакултурној индустрији. На овај начин, тренутно стање производње, трошкова и улагања, као и обрта капитала и продаје у посљедњих десет година, евалуирани су у контексту запошљавања. Закључено је да ће се проблеми запошљавања, у смислу квалификованих радника, у предстојећем периоду ипак наставити повећавати.

Кључне ријечи: аквакултура, сектор, запошљавање, рибарство, радници

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Received: June 13, 2016
Accepted: December 26, 2016