Identification of economic supports and constraints to aquaculture development

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SUMMARY - The significant development of aquaculture in Greece has been favoured not only by its optimal geo-climatic conditions, but also by the favourable motives/incentives which have been established during 1980-90 both by the EEC and the local Ministry of Agriculture, as well as by the Agricultural Bank of Greece. The EEC and Greece have offered some incentive/grants for the establishment of aquaculture units and a limited number of grants for the operation and management of establishments. The banks have also granted funds to investors and always under specific conditions. The granted funds should be paid back to the bank, together with their respective interest charges, to have new fund allocations secured. Nowadays, despite all these favourable motives/incentives, many aquaculture sub-sectors have reached a marginal level of productivity/profitability. When producers do not reach their objectives, the loans are not paid on time, the interest rates are accumulated, the cost of loan acquisition becomes higher and banks become "hostile" by interrupting their financing. All the above results in the stagnation and the drawback of the development of aquaculture and the closing down of business. Therefore, the re-organization and the re-engineering of many businesses are necessary, focusing on the application of new policies, methods and decision-making processes. In order to avoid difficult situations such as the bankruptcy of businesses and the slowing down of the development of the aquaculture sector, a very close co-operation of scientists, producers and their organization, together with the banks is necessary, not only within each country, but also within the EEC.

Key words: Subsidies, incentives, loans, interest rate.

RESUME - *Le développement notable de l'aquaculture en Grèce a été favorisé non seulement par des conditions géoclimatiques optimales, mais également par les dispositions et mesures d'encouragement instaurées pendant les années 1980-90 par la CEE et le Ministère de l'Agriculture de ce pays, ainsi que par la Banque Agricole de Grèce. La CEE et la Grèce ont mis à disposition primes et subventions destinées à promouvoir l'établissement d'unités aquacoles, ainsi qu'un nombre limité de subventions pour le fonctionnement et la gestion de ces entreprises. Les banques ont également apporté des fonds aux investisseurs, toujours sous des conditions spéciales. Ce financement devrait être remboursé à la banque, ainsi que les intérêts correspondants, afin de se voir accorder une nouvelle attribution de fonds. Actuellement, malgré toutes ces dispositions et mesures d'encouragement favorables, beaucoup de sous-secteurs aquacoles se heurtent à un niveau marginal de productivité/bénéfice. Lorsque les producteurs n'atteignent pas leurs objectifs, les emprunts ne sont pas remboursés en temps voulu, les intérêts s'accumulent, le coût d'obtention d'un nouveau prêt s'élève et les banques adoptent une position "hostile" en interrompant leur financement. Tout ceci entraîne une stagnation et un recul du développement aquacole et la fermeture d'entreprises de ce secteur. Il est donc nécessaire de réorganiser et de relancer un grand nombre d'entreprises, en se centrant sur la mise en oeuvre de nouvelles politiques, sur de nouveaux processus méthodologiques et démarches pour la prise de décisions. Afin d'éviter des situations difficiles telles que la faillite de ces entreprises et le ralentissement du développement du secteur aquacole, il est nécessaire d'établir une coopération très étroite entre scientifiques, producteurs, les organisations auxquelles ils appartiennent, et les banques, non seulement à l'intérieur de chaque pays, mais aussi au sein de la CEE.*

Mots-clés : *Subventions, mesures d'encouragement, prêts, taux d'intérêt.*

Financing (loans and subsidies) - The Greek situation

Introduction

The climatic as well as the geo-morphological conditions (morphology of the coasts) highly favour the development of mariculture as well as shellfish farming, especially mussels. The major reasons leading to the development of sea-bream and sea-bass farming are the high demand from the Greek and the European consumers for marine species of high retail price, the raise of the standards of living and the high profits during the first years of operation of the production units. The high production cost was balanced by the high selling prices. The development of the mussel farming, which have low retail prices and low demand in Greece, can be attributed to the existence of suitable locations for the installation of units, the low investment cost and the increased demand from the Italian consumers trough the last few years. Despite all the above the main reasons for the development were:

- The development of technology of reproduction of marine species in Europe and in Greece the last two decades.
- The incentives and the subsidies which had been enacted during the decade 1980-1990 both from the Greek Ministry of Agriculture and the Agricultural Bank of Greece.
- The technology applied, was unknown to the greek businessmen, who, it should be noted, that for the first time then, they started dealing with sea-bream and sea-bass farming.

The high subsidies, whatsoever, the high profit and the loan policy of the banks, have contributed a lot to the realization of many investment opportunities.

The problems which arose the last two decades have proved that the required Infrastructure has not been developed satisfactorily, referring especially to construction, equipment and local fish-feed industries. The lack of qualified scientists of many categories, became evident especially in the fields of aquaculture economics, marketing and ichtyo-pathology. There were many problems dealing with the training of the producers and the labour force of the various units, dealing with the application of the technology and the proper management of the installations.

The Agricultural Bank of Greece was the only bank, at the beginning, which was granting loans for investments and working capital on aquaculture units. Later on, the other banks started granting loans to profitable businesses, but only for working capital. When the production of sea-bream, sea-bass and mussels increased and a large share of the demand was satisfied, the inadequacy of the distribution and marketing network of mariculture products became very evident. The incentives which had been decided both from EEC and the Greek State, referring to the establishment of mariculture farms, were very satisfactory (Table 1). Despite this, no subsidies and incentives had been established for the sectors previously described. The decade 1980-1990 has been characterized for Greece as the period of aquaculture investments and development. Furthermore, the mechanisms which would help to an automatic slow-down of this development, when this would be necessary, were neglected at the beginning.

Table 1. Subsidies from E.C. and from the State to investors for the construction of aquaculture enterprises. Percentage (%) on the construction cost (the E.C. accepted the increase of the cost 12-18% because of the inflation)

	E.C.	STATE	TOTAL
Subsidies from E.C. and from the State	40%	20% 15%	60% 55%
Subsidies from the State	since 1990	35%	35% participation
	before 1990	10-50% according to the zones	10-50% (40%)
Motivations on the rate of interest	since 1990	35% on the rate of interest (3 years)	35% on the rate of interest (3 years)
	before 1990	10-50% (40%) (3 years)	10-50% (40%) (3 years)

Subsidies and other incentives

EEC subsidies

The subsidies granted for the sea-bream and the sea-bass farms were very satisfactory and attractive to investors. The percentage of financing is 40% of the investment cost, since 1984. In addition to the above, EEC has accepted, due to the high inflation rates in Greece, to increase the Selective Cost, up to 12-18%, in order to balance the additional investment cost. Later on, from 1986/88, more satisfactory subsidies were enacted and applied, dealing with market research, training and processing of aquaculture products, etc. (Table 1)

Greek subsidies

The Greek Ministry of Agriculture was originally granting the 20% of the investment cost for approved EEC subsidies, while the percentage today has decreased to 15%. (Total EEC + State = 40 + 20 = 60% and later on 40 + 15 = 55%). For investments financed by the Ministry of National Economy, the subsidy was originally from 10-15%, while today is 35%. The Ministry of Agriculture decided from 1990 and on, to grant subsidies for market research as well as for processing of aquaculture products (Table 1).

Incentives from the Greek State and the Agricultural Bank of Greece

- A guaranty has been enacted by the Ministry of Agriculture to the ABG for the allocation of loans for the establishment of aquaculture units, which had been approved for subsidies by EEC and the Greek State.

- Loans to the investors in order to cover the amount of the subsidy until this would be paid after finishing the construction of the unit.
- Grace period up to 2-3 years for loans of the ABG. The pay-back of the loan started from the 3rd or the 4th year.
- Subsidy on the interest rate of the loan for the first 3 years, 10-15% originally and today 35%.
- Increase of the duration of the loan repayment period.
- Loan grant with collateral the cages and the fish which have been insured for marine dangers and deceases, etc.
- Permition from the Ministry of National Economy to the ABG to approve itself the subsidies for the whole country for investments, regarding the establishment of a new unit as well as for the modernization of old ones, up to 800 mil drs. per case. This had as a result the minimization of the lead time for approval and realization of the installations.
- Establishment of a priority procedure to the approvals of the investments for sea-bream and sea-bass.

Subsidy problems

The major problems related to subsidies that the investors have faced are as follows:

- Insufficient information for the various programs and the required documentation for the approval of the investment and the grant of the subsidy.
- Delay at the approval and the payment of the subsidy.
- Lack of qualified research bureaus for researches and studies, especially in the rural areas.
- High costs for the purchasing of technological equipment and know-how.
- Lack of special consultants on sectoral studies, especially on market research and marketing development.
- Insufficient technology.

Loans from the Agricultural Bank of Greece

Since 1989 all banks grant loans for aquaculture development in Greece. The Agricultural Bank of Greece is the only bank in Greece which grants loans for investment because it is staffed with scientific personnel who can evaluate the suitability of the installations and the profitability of the units. ABG comes first even in the case of loans for working capital.

The objectives of the credit policy of the ABG relevant to loans for aquaculture are:

- Establishment of new units.
- Correct financial management and control of the units.
- Supply of technical and financial advise to the investors.
- Training on technical, financial and social aspects relevant to the units at the Training Centre of the Bank, established for this reason.

The ABG has simplified the procedures of inspecting and approving the loans, by guiding the departments around the country and decentralizing many of the procedures and the decision making. This has been succeeded with special financial and accounting guidelines to the departments, while the approval can be granted directly by them up to the amount of 100 mil.drs per investment and 150 mil.drs for working capital. Today these limits have been decreased by 50% per case as above described.

Loan categories and loan duration

The loans granted cover all the activities of the businesses for the construction and the purchasing of equipment of the units, their operation, their commercial activities etc., taking into account that they are well organized, modernized and viable businesses. The loans can be divided into the following categories: short term loans for the operation of a unit and medium or long term for the construction of a unit as follows:

- Working capital up to 2 years.
- Construction and equipment up to 15 years.
- Coverage of subsidy up to 3 years.
- As collateral the production, up to 6 months.
- With Letter of Guaranty.
- For bank cheques of the producers, from 6-12 months.
- For exports in greek or foreign currency up to 6.5 months.
- Consumer loans to fish farmers.
- For construction of artisanal/industrial units 10-12 years.
- For fish retail outlets/freezers etc., 10-12 years.
- For the purchase of units or stocks from 5-10 years.

Interest rates of loans

The interest rates are high due to the high inflation rate. A few years ago, interest rates for loans were 12-14%, then they moved to 17-19%, reached 23-25% and decreased to 21-24% in 1995.

Medium or long term loans

- Family operated units	21%
- Businesses	22%
- in combination to subsidies	23%

Short term loans (1-2 years)

- Family operated units	22%
- Businessmen	24%

Criteria for loan grants

The whole folder of the application for a loan is inspected and studied thoroughly by specialised personnel on economic and technical parts separately. The major points checked are:

- The suitability of the investor or of the stocks of the business.
- The suitability of the location where the unit is going to be constructed.
- The profitability of the sector and the unit.
- The suitability and completeness of the constructions, the equipment and the machinery, etc.
- The viability and the productivity of the unit.
- The personnel who is going to be employed there.
- The sources of financing.
- The local economic and social situation.
- The technical, economic and accounting organization of the unit.
- The contribution of the investor for the coverage of the investment costs and the working capital.
- The guaranties supported.
- The insurance of the installations and the fish.
- The installation and operation permits/licences of the unit and the approval from the various Authorities dealing with environment.
- The application of the decision of the Ministry of Agriculture for the units which have been subsidised.

During the construction period, the progress of the operations is controlled by representatives of the ABG, while the loan is repaid in instalments originally agreed.

Referring to the investors or the shareholders of the units the following things are checked:

- Professional experience in this field.
- Financial level.
- Solvency.
- Good transactional background.
- The own contribution capability, etc.

(The contribution and the guaranties are very thoroughly checked)

Own contribution

The contribution of the investor in capital must fluctuate between 20-40% of the total investment cost, depending on the type and the level of the investment, the viability and the guaranties. For the case of investments accompanied by subsidies this is decreased to 10-15%.

The guaranty of the loans

The construction and the installations of the fish farms are very specialized and very distinguishable from other types of installations. A special attention is paid to the guaranty because in many cases, when there is very limited demand for the installations of businesses which went bankrupt, the loans can not be paid back. The guaranty is effected as follows:

- With mortgage of the unit itself on land.
- With mortgage of urban or agricultural estate, apart from the unit, when the installations are at sea.

- As collateral, the cages, the equipment etc., when insured in Insurance companies.
- As collateral, the fish when it is insured.

In general the Bank, with the mortgages and the pawns, tries to cover the relation:

mortgages + collateral/loans = 150/100

When the businesses are well organized:

mortgages (75-100%) + collateral (50-75%)/loans = 150/100

Procedure for checking the loan

The application together with the folder is submitted to the local ABG department, and it is inspected by the technical and economic authorities. Up to 100 mil. drs (today 50 mil. drs) the loan is granted directly by the local department of the Bank. Otherwise if the amount exceeds the 100 million, it is forwarded to the Central Office in Athens.

Viability of the units

In order for a unit to be viable and profitable, three (3) optimums must be safeguarded:

- The biological optimum.
- The economic optimum.
- The environmental optimum.

All criteria mentioned, as well as the financial/economic results should be positive. Especially the achievement of the inflow of money as estimated (turnover) is very thoroughly checked, in relation to the correctness of the estimated fixed and variable cost items. In addition, the economic indicators of the business are checked:

The repayment indicator (greater than 1):

net profit + interest + depreciation/flat/equal payment of capital 1

The return on investment indicator which should be greater than the interest rate:

net profit + interest/investment cost 22%

The index of productiviness of aquaculture enterprises on different fields is shown in Table 2. The "return on investment" indicator for the sea-bream and sea-bass farms was as follows:

1989	**1990/91**	**1993/94**
80-150%	40-60%	25-45%

The same indicator for the hatcheries was:

1989	1993/94
15-25%	25-45%

Table 2. Index of productiveness of aquaculture enterprises on different fields

Field	Index in 1993/94	Index in 1990/91	Index in 1989
Euryhaline fish sea-bream and sea-bass hatchery	25-45%	--	15-25%
Fattening	25-45%	40-60%	80-150%
Trout	10-20%	--	--
Carp	5-15%	--	--
Eel	10-19%	--	--
Mussel	20-25%	--	35-40%
Rate of interest	22-24%		

The ROI indicator highly depends on the selling prices of the products. When the prices decreased, the indicators also decreased. Referring to the hatcheries, the productivity has been increased. The same indicator for the mussel farms was for 1989 (35-40%). With the decline in the selling prices of mussels this indicator was lowered to 25%.

The fresh water farms have much lower ROI indicators (trout 10-20%, carp 5-15%, eel 10-19%) The correct market research of the products will give much better results referring to the viability indicator of the unit .

Loan cost

The cost of loan, or in other words the charge to the production cost from the loans, fluctuates depending on the level and the duration of the loans, as well as the interest rate. For the case of units which have been subsidised the situation is shown in Table 3.

In reality the cost increases by 4% for the units which have not been subsidised. When the businessmen do not pay back the loans, then more interest charges are accumulated and the cost increases by 4% approximately and later on much more. The Insurance cost of the production (fish) is estimated to be 5% approximately. In this case the cost of the loan grant together with the insurance raises to 27% (14 + 4 + 4 + 5 = 27%) on the production cost.

Table 3. Financial cost. It includes the shock-absorber of the annually debts and the credit reimbursement for variables expenses.

Field	Percentage on cost of exploitation
Sea-bream and sea-bass (fattening)	12-14%
Mussel	13%
Trout	10-11%
Eel	14%
For the sea-bream and sea-bass	12-14%
-- If there is no subsidies	2-4% (more)
-- If the clients don't pay off the financing	2-7% (more)
Total	16-25%
Assurance cost	5-5%
Total	21-30%

Loan problems

The problems faced by the investors of businesses which finally never operated or operated at the beginning and then closed down, are as follows:

- Incapability of payment of the own contribution or the working capital.
- Disagreement of the shareholders of the business.
- Inability of granting guaranty to the Bank in order to be able to get the loan, such as mortgage, etc.
- Inadequate organization of the business.
- High interest rates.
- Unsuitable institutions.
- Unsuitable or non-specialized scientists/researchers.
- Applications of insufficient quality of technology.
- Denial of establishment of the unit, due to complaints from the local population.

According to the data of ABG, from 1983-1991, 161 units have been approved for loan grants with 11 bil.drs. The 72% of the capital has been consumed for the establishment of sea-bream and sea-bass farms. From these 161 units, only 148 were finally constructed (92%, out of which 4 closed down [37%], 4 did not operate at all [2.7%] and today only 140 operate [94%] out of which 6 with very serious financial problems).

Sources of financing

In Greece since 1981 up to 1991, 12.2 bil drs have been distributed for the construction of aquaculture units, based on official data. A 32.8% of it, has been allocated by EEC and the Member State, 42.6% from the ABG, 5.8% from other banks and 18.8% from the own contribution of the investors/producers (Table 4).

Table 4. Funds sources for aquaculture for the construction of the enterprises

	The value in millions of drachmas	(%)
Subsidies of E.C. and of the State	40,300	32.8
Financing of Agricultural Bank	5,200	42.6
Participation of investors	2,300	18.8
Other Banks	700	5.8
Total	12,200	100.0

Loans to producers from ABG

Up to 1993, the funds allocated by ABG reached 6.7 bil. drs. The 92% has been allocated from 1988 up to 1993. In 1988 and 1989, the Ministry of Agriculture has guarantied the loans to the ABG for the cases for which subsidies had been approved, and the loans had been increased 10% the 1st year and 20% the second. In 1990, the guaranty has been interrupted and the loans were decreased 80%. In 1991 when the guaranty started being valid again, the loans increased by ten times (Table 5).

The ABG has granted the required loans to the viable businesses as it has already been mentioned above. The funds granted are relevant to the incentive framework, under which they were allocated.

The aquaculture units are businesses of long term yield (2 years for the production of fish) and the investors do not easily risk their money. In addition, they do not always have real estate to present as mortgage to the bank, because the farming activities for sea-bream and sea-bas as a majority are effectuated at sea and not on land installation. The inability of disposition of mortgage to the bank is a very strong anti-motive not only for the development of the sector but also for the right operation of the units.

Many producers who have constructed a medium scale unit, could not expand it because they did not have the required mortgages. This had as a result the inability to raise the limit of the loan. Despite this, the profit from the farm was high and tempting. Many businessmen did the necessary expansions, in order to increase their production, by using the money of the loan for Working Capital instead of returning it to the Bank for paying back their debts. They were intending to pay them back from the profit of the farm. In this case, after the expiration of the loan, the interest charges started to be accumulated. At the same time and due to the decline in the selling prices, the profit has declined as well and it was impossible for the producer to pay back to the Bank. The same phenomenon has been noticed for the customers of the Bank for the cases of:

- Loss from deceases and bad weather conditions, while at the same time the production has not been insured.
- They were obliged to relocate, due to complaints from the local population.

- They have utilised part of the money of the loan for other activities.
- They have used a part of the money in order to compensate the partner and to acquire the 100% of the unit.

Table 5. The financing amount of aquaculture from the Agricultural Bank from 1981 to 1993

	For construction of enterprises (in millions of drachmas)		Surface of basins and of cages (in square metres)	
1981	41		--	
1982	17	58	--	
1983	10		10,632	(trout)
1984	29		94,959	(carp and eel)
1985	221		--	
1986	152		18,838	(sea-bass and sea-bream)
1987	112		277,320	
1988	791		257,852	
1989	911		157,222	
1990	240		52,300	
1991	2,710	5,234	121,062	
1992	405		36,000	
1993			36,000	
Total	6,778		1,062,101	

Loss of inflow of money has been noticed from other causes such as:

- Due to the inflation and the decline of the selling prices, the inflow of money has declined as well, while at the same time the costs of the unit were increasing.
- The profits of the businesses exporting to Italy, had declined due to the decline of the Italian Lira.
- Bank cheques of various wholesalers who had purchased the production of the units were not paid, and this caused a loss to the producers of sea-bass by 2.5 bil. drs in Greece.
- Low compensation from the insurance companies in the cases of damages due to deceases or other external causes. This had as a result the inability of paying back the loan.

The financial risks of the businesses are many and they can not be easily anticipated, because the competition is hard not only within the country but also at a

European level. The producer is not able to control all the activities which are developed from the selling of the product up to the plate of the consumer. When his estimations are incorrect and can not pay back his debts to the bank, he can not renew the technological equipment of the unit and modernize the business, having as a result the production cost to be increased much more. In this case he should take very serious decisions such as to sell the unit, totally or a part of it, in order to ensure inflow of capital which is required at this moment. Many investors are not capable to manage their businesses and on the way they face the necessity of selling the unit.

Trends

The following phenomena can be observed nowadays in Greece:

- Merging of farms.
- Operation of farms at a marginal level of profitability.
- Entrance at the Greek stock market of large and successful businesses.
- Operation of units with satisfactory financial results.
- Expansion of already existing units and establishment of new ones.

There is no system of control of all the mechanisms which influence the operation and the viability of the farm, more studies and researches are required, referring to the future course of the aquaculture sector. At the same time the lack of Producers Organizations does not help to the estimation of conclusions referring to the future of each sub-sector particularly, and especially sea-bream and sea-bass.

Measurements should be established for the precaution and the handling of the problems. The competition within the local and the european market is very hard and every year the financial situation becomes even much more difficult.

Conclusions

The aquaculture sub-sector of marine species can be characterised as developed with a satisfactory share to the National Economy.

More financial data are required for the elaboration, the coping and the solution of the problems. At a European stage, the aquaculture sector has very good prospects because the consumers demand these kinds of products.

For the confronting of all the questions and problems, it is necessary to establish a more close co-operation of the scientists, the producers, the banks, the Authorities, the commercial and processing businesses, etc., such as to continue the development of the sector under a framework of control. This will help the precaution of unpleasant situations such as the bankruptcy of the units and the increase of the unemployment in Greece.

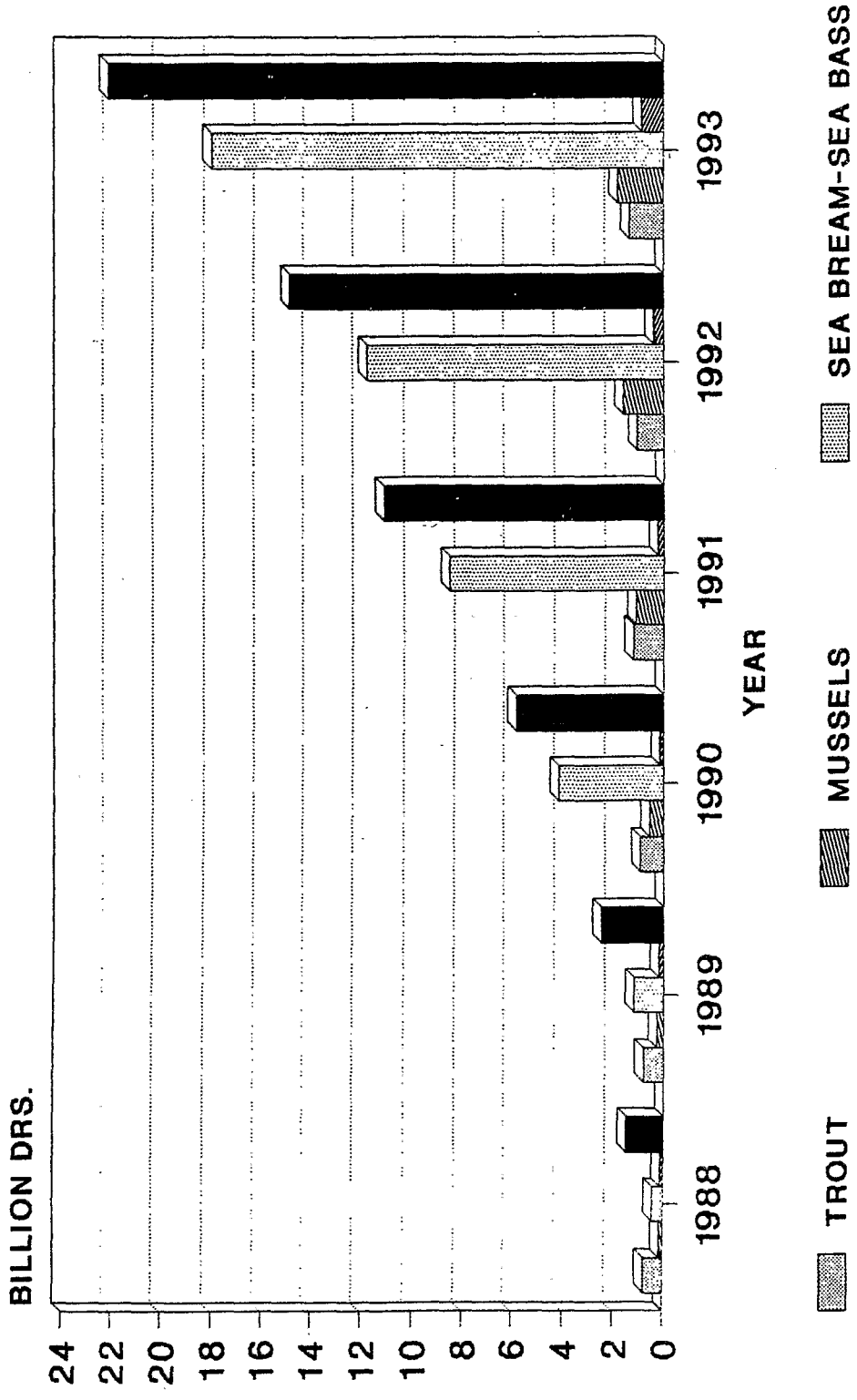

Fig. 1. Aquaculture production value. Source: Agricultural Bank of Greece.

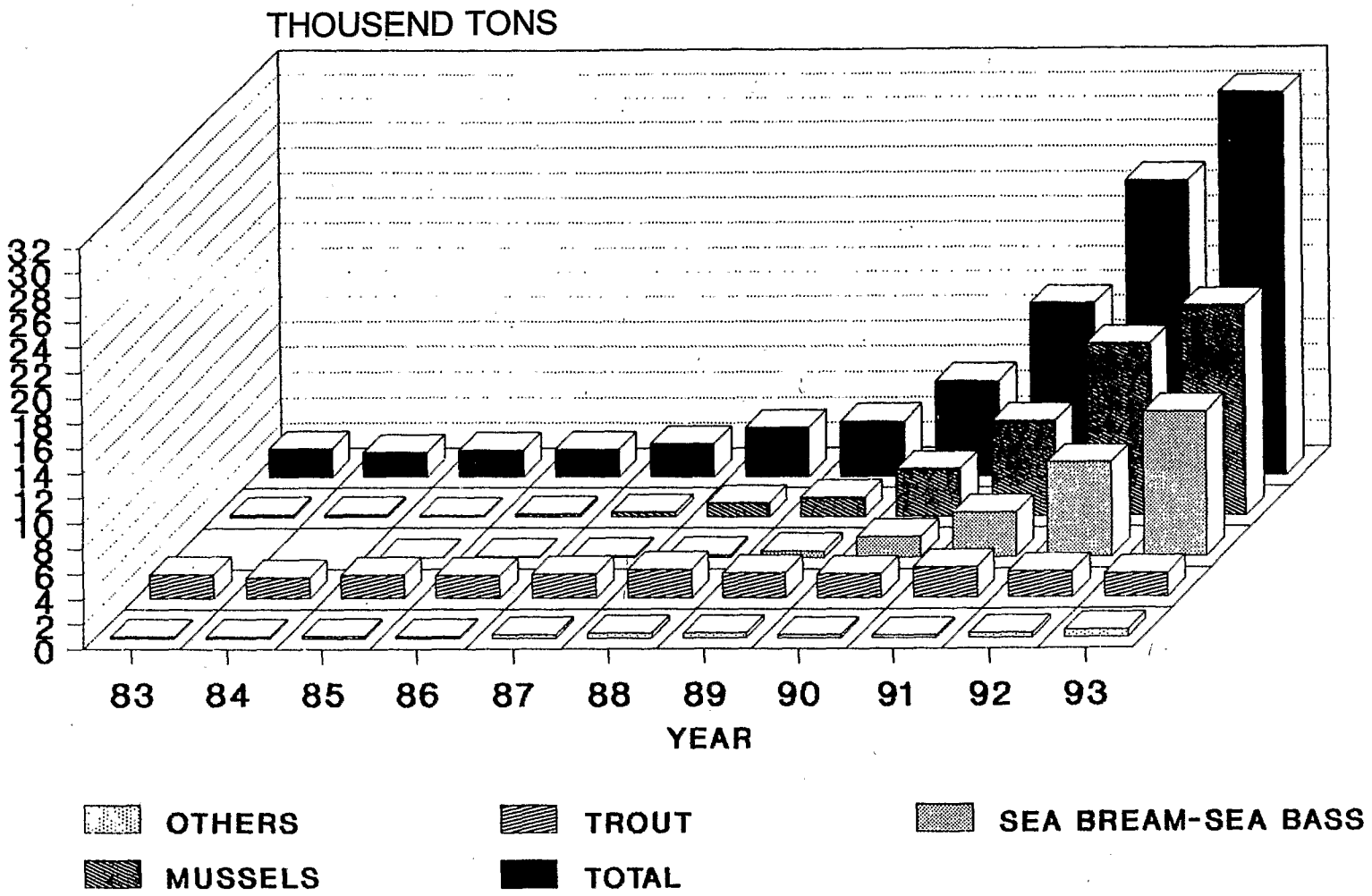

Fig. 2 Aquaculture production in Greece. Source: Agricultural Bank of Greece.

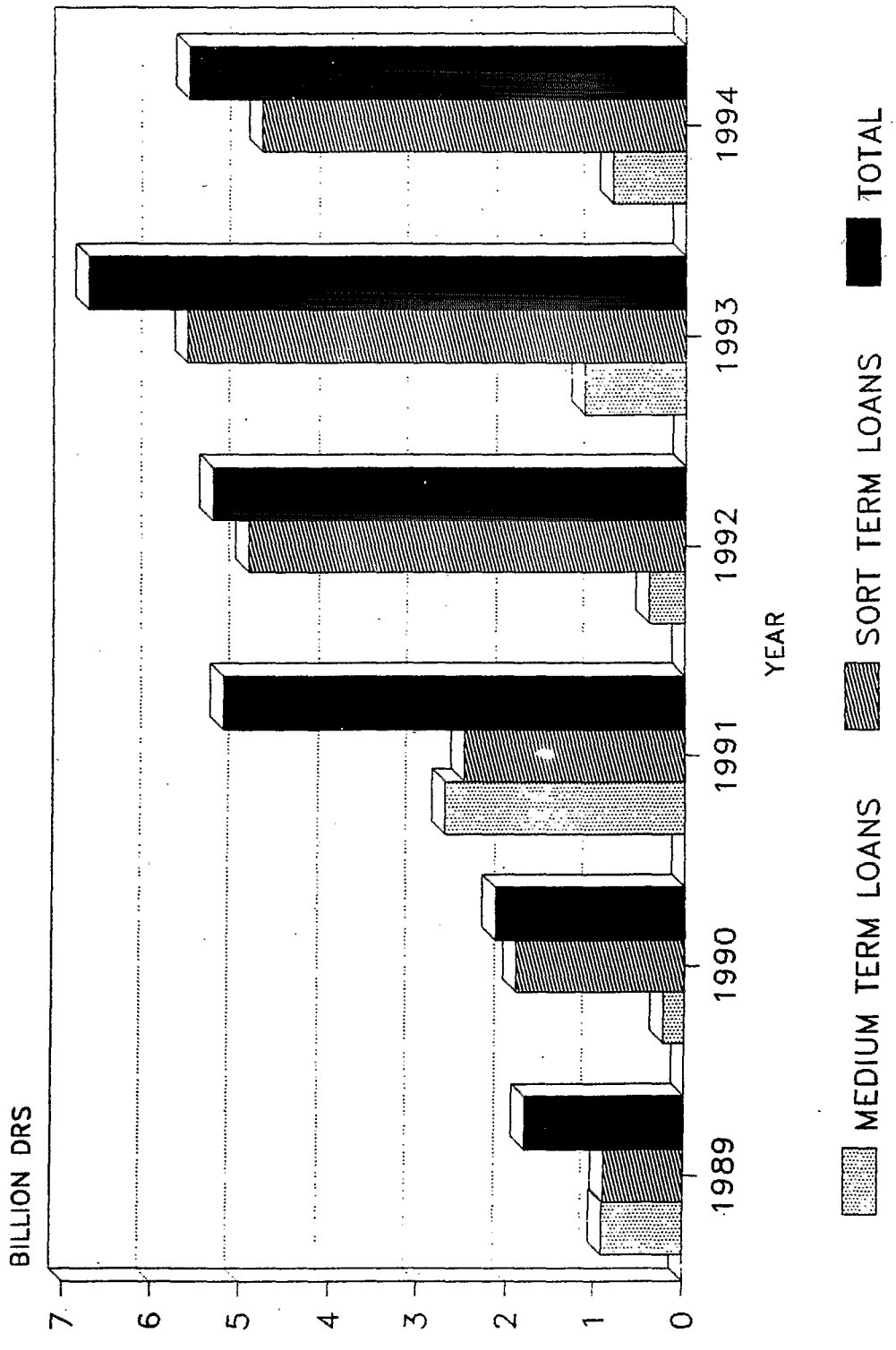

Fig. 3. Agricultural Bank og Greece (ABG) short & medium term loans to aquaculture (1989-1994).