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**THE EUROSTAT PROJECT
"TRAINING OF EUROPEAN STATISTICIANS" (TES):
EXPERIENCE OF THE FIRST THREE YEARS
AND SOME REFLECTIONS ON THE FUTURE**

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1. Introduction

Eurostat (the Statistical Office of the European Communities) started the project "Training of European Statisticians" (TES) at the beginning of 1990. The project has the following objectives:

- to promote a convergence of the practices of National Statistical Institutes (NSI) by means of common training measures and by creating a context in which methodical (but unofficial) comparison may be made of national statistical systems and experiences, thus contributing to the harmonisation of concepts and methods;
- to train and/or retrain statisticians in the use of new and efficient operational methods and tools and to explore technological frontiers in the field of applied statistics;
- to offer to young people trained in other disciplines the possibility of specialising in statistics, in a broader context where account is taken of the Community dimension of problems and to present to statisticians the new statistical requirements which have resulted from changes in European society and stimulate reflection on different models.

The above objectives are being pursued through the following activities: the organisation of annual professional training programmes for statisticians; the creation and the maintenance of a data bank on existing post-university training courses in Europe relevant to statisticians, followed later by the issue of a bulletin which will serve as a means for exchange of information on training facilities and the dissemination of information on ad-hoc events (conferences, seminars, etc.).

2. Characteristics of the TES training programme

2.1 Objectives

The objective of the programmes is to offer professional training facilities of a strongly applied character on subjects which, by their nature, cannot be dealt with adequately at universities, are specific for the work environment (statistical institutes) or have a dimension surpassing the national boundaries. Moreover, the programme offers a platform for high-level discussions on various management and policy issues relevant to National Statistical Institutes. The programme is to be seen as complementary to existing national professional training facilities. It should be stressed that the programme aims at training and development for statisticians and not exclusively at training of statistics.

2.2 Targets groups

The programmes are designed for public sector statisticians in the Member States of the European Community and EFTA. However, the programmes will also be open for the National Statistical Institutes of countries in Central and Eastern Europe and private sector statisticians. The courses and the seminars thus have a truly international audience.

2.3 Training philosophy

The training programmes in the TES project are vocational training programmes. This means that the training modules are directed at professional categories of statisticians and not at university students. Training aimed at professional categories can rely much more on real-world examples than university training can. In fact it should take the problems encountered by the participant in his working environment as point of departure. This approach allows to attract a direct interest of the participant who will realise the immediate utility of a particular training module for his professional work. Hence, the pedagogical method is problem-oriented and based on the principle of learning-by-doing whenever possible.

2.4 Programme and curriculum development

The content of the TES training programmes can be defined at three different levels of detail. At a global level one may look at the composition of the programme in terms of the various main areas of training (e.g. statistics, automation, etc.). Secondly, one may consider the choice of training modules within each main area. Lastly, the content of each training module may be examined. For each of these levels of detail the leading principle is that choices are made on the basis of the training

needs in the countries concerned.

Every year, the proposals for the annual training programme are submitted to the Scientific Committee (SCICOM) of the TES project. The main task of the SCICOM is to maintain the relevance of the training programme in view of the training needs perceived.

Moreover, the TES-Secretariat regularly conducts a survey of training needs of the National Statistical Institutes of the Member States of the European Community and EFTA. The TES Secretariat also identifies the areas in which National Statistical Institutes and academic institutions can contribute to the training programme.

The TES programmes cover the following main training areas:

- I Statistical Techniques (TEC)
- II Official Statistics (OFF)
- III Economic and Social Analysis (ESO)
- IV Automation (EDP)
- V Management and Policy (MAP)
- VI European Integration (EUR)

The training programmes distinguish between two types of modules: *courses* which are modules aimed at junior and mid-career statisticians with a duration varying between 3 days and 3 weeks and *seminars* which are modules aimed at senior statisticians and managers with a duration of 2-3 days. Courses may be regular (i.e. reappear in the subsequent yearly programmes) or may have an ad-hoc character. Seminars are modules in which the preponderant learning mode will be the exchange of experience and know-how on the basis of contributed papers. Seminars may either have a scientific character, bringing together specialists in a specific field, or they may be policy - or management - oriented, bringing together top executives and managers of Statistical Institutes.

The annual training programmes contain a menu of courses and seminars from which one may select freely, provided the entry qualifications are satisfactory. The courses are given in English, French or German or are multilingual (simultaneous interpretation with two or three of the before mentioned languages). The seminars are all multilingual.

The policy with respect to the curriculum development in each main area is based on the following criteria. For the annual programmes the choice of the training modules is based on:

- a) the expressed needs of the National Statistical Institutes;
- b) the number of registrations in the previous programme;
- c) the results of ex-post evaluation by participants and teaching staff of modules taught in previous programmes;

- d) assessment by the sponsoring organisations of the effect of training modules on the professional performance of their staff;
- e) the results of discussion in the SCICOM (Scientific Committee of TES).

Furthermore, the contents of each course, both in terms of subject matter and in terms of training method are subject to regular revisions based on participants' assessment, evaluation of teaching staff and assessment by the NSIs.

The continuous-feedback of the sponsoring institutions, participants, teaching staff and the SCICOM is considered essential for the programme to remain relevant.

3. The experience of the first three years

3.1 *The programmes*

The overview of the courses together with their frequency, their duration and the language in which they were given is presented in Table 1 of the annex. Detailed contents for each of the courses can be obtained from the TES Secretariat. The courses and the seminars mentioned in the annual programmes are given in different locations all through Europe.

3.2 *The participation*

Until now the participants in the annual TES training programmes have been public sector statisticians from the all Member States of the EC and the EFTA and from the following transition countries (referred to as ECO): Bulgaria, Hungary, Poland, Romania, Slovak Republic, Czech Republic and Slovenia (Yugoslavia participated only in 1991).

The total number of persons participating in the courses of the annual programmes of 1991-1992, 1992-1993 and 1993-1994 are 275, 367 and 532 respectively. This number does not contain the participation in seminars which varied strongly over the different programmes due to the variation in number of seminars programmed.

The tables 2 to 4 of the annex provide for each of the three annual programmes details on the participation per region and per main training area. Fig. 1 shows that when the training programme started in 1991 more than half of the participants (58%) attended courses related to European Integration issues (EUR); the second important training area was Statistical Techniques, followed by Automation (EDP) and Official Statistics (OFF) which, for this programme, was restricted to national accounts statistics. The distribution of participants between the various

training areas is obviously related to the number of courses offered in each training area.

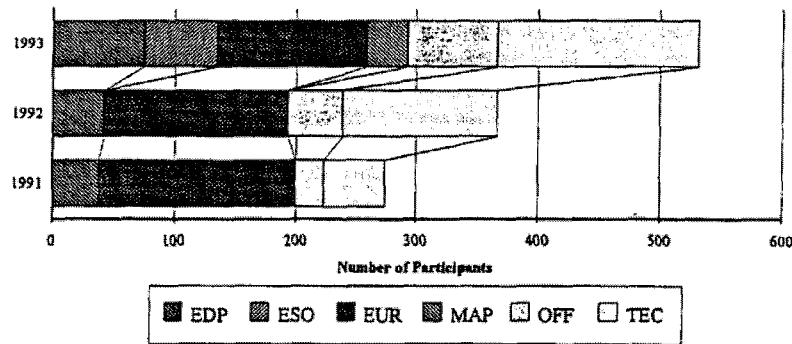


Figure 1. Number of course participants per main training area

However, it is also related to the average class size in each of the main areas. For the more technical training areas the average class size has to be significantly lower than for the more general subjects. Fig. 2 gives an impression of these differences.

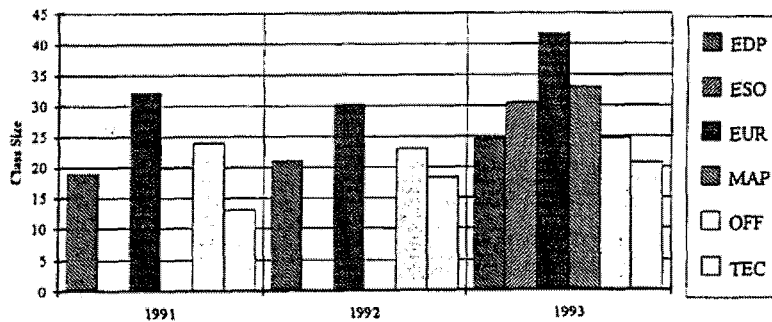


Figure 2. Average class size per main training area

In the programme 1992-1993 the number of courses on Statistical Techniques was increased from 4 to 7, implying that the participation in this type of courses increased from 19 to 35 per cent. Fig. 1 also shows an increase for Official Statistics related to the introduction of second course in French on national accounts statistics.

Finally, the programme 1993-1994 was restructured. It includes two new training areas, Management and Policy (MAP) and Economic and Social Analysis (ESO), bringing the number of main training areas to five. Moreover, this programme only counts two courses on the Functioning of the EC and its Statistical System instead of three in the previous programmes. Consequently, the distribution of participants over the training areas changes significantly, leaving Statistical Techniques the largest training area with 165 participants (32%), followed by European Integration with 125 participants (23%) and Automation and Economic and Social Analysis with both 74 participants (14%).

Also interesting is the distribution of participants according to their region of origin. Fig. 3 shows that the training project started with a very high proportion of participants coming from EC countries and relative small proportions coming from EFTA and Central European (ECO) countries. The implications of the political changes in Europe around the beginning of the decade on the TES training programme are evident: by 1993 almost half of the participants came from ECO countries, slightly more than half from EC countries and about ten per cent from EFTA countries. The overall growth in participation was about 25% per annum, that of EC participation 4%, that of EFTA participation 63% and that of ECO participation 83% per annum.

The participation in seminars was very high in the first year of operation as there were four seminars organised that year. For the subsequent programmes only one seminar per year was programmed.

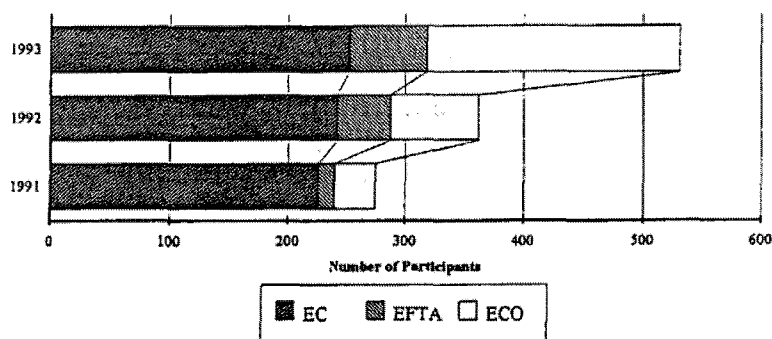


Figure 3. Number of course participants per region

3.3 The training method

The choice of training methods in this professional training programme for statisticians is a factor of paramount importance for the

success of a course. It is not always easy to convince the training staff that traditional lecturing as a one-way transfer of know-how is not the best way in adult training.

Due to the fact that most statistical institutes are not prepared to let their staff attend courses for a long period most courses have a duration of about 5 days. This is a very short time span if one wants to give *theory* the place and the time it needs. Therefore the present trend is to provide the future participants with the necessary theoretical course material well in advance and to require a sound theoretical preparation before attendance of the course. In this way the course staff can concentrate on the discussion of real world case studies (often based on empirical material provided by the participants) and on *hands-on* training using increasingly personal computers and standard statistical software packages.

Practical work during the courses is often performed in small subgroups and requires a high trainer-participant ratio.

A special seminar for trainers in the TES programme on modern adult training methods is planned to take place at the end of 1993.

4. Conclusions and perspectives

In conclusion it can be said that this initiative of Eurostat has shown to cater for a real need for training and to provide a good platform for international contacts between European statisticians.

For the future development of the project "Training of European Statisticians" the following orientations and initiatives will be given priority:

- Continuing attention will be paid to the practical applications and learning-by-doing in the various courses. The applications should, as much as possible, relate to the day-to-day work in the national statistical offices both at national level and in their relation to Eurostat.
- Case studies will be edited both at national and Eurostat level which could serve as illustrations and data bases for applications in various courses. These case studies should have a project character and cover a range of aspects specific to a statistical project.
- The TES Secretariat will continue developing course manuals that have a direct utility for the participants in their work environment.
- The TES programme will continue to play a supportive role with regard to the harmonisation of methods and concepts in the EC.

- In principle, participants from countries outside Europe can be given the opportunity to participate in TES courses provided that their candidature is supported by a NSI of an EC or EFTA Member State. Applications will be considered case by case and competition with other training centres (CESD network) will be avoided.
- Measures will be taken to improve the homogeneity as regards the background of participants attending the same course. Entry requirements will be made more specific. The correspondents will be asked to do their utmost to stress the importance of the fulfilment of the entry requirements both with the participants and the authorities responsible for the selection of the participants of their institutions.
- It has been observed that the balance between theory and applications is not a sufficient condition for the courses to be fully appreciated by the participants. The training methodology should be oriented towards the needs of professional adult training, i.e. the introduction of theory and methodology should be carried out in the context of a problem oriented exercise. Several training techniques with this objective have been developed and it was decided to organise a *seminar for TES trainers* in the second half of 1993. The objectives of the proposed seminar are: to offer a platform of discussion and exchange of experiences concerning training methods applied so far in the annual TES training programmes, (participants are invited to submit short position papers), to provide the trainers with expert views on practical solutions for training methods specifically aimed at professional training on the basis of a number of invited papers, to offer the trainers the opportunity to discuss the problems encountered in specific learning situations with experts in training method. The seminar should result in practical guidelines on training methods for TES trainers.
- With respect to target groups the prime orientation will remain towards the NSIs. However low-cost promotion will be made towards networks of various kinds, e.g. chambers of commerce. The publicity of the TES programme should also be extended to regional and local statistical agencies.

The major challenges for the future are to ensure a high professional standard of the training, to maintain the relevance of the programme, i.e. to follow closely the training needs of the National Statistical Institutes and to continue efforts to better adjust training methods to the needs of our target group.

ANNEX: SOME STATISTICS ON THE THREE ANNUAL PROGRAMMES AND INFORMATION ON THE 1994-1995 PROGRAMME

Table 1. Overview of the three programmes and the planned 1994-1995 programme

COURSE/SEMINAR TITLES	1991-1992			1992-1993			1993-1994			Planned 1994-1995		
	Course Frequency	Language(s)	Duration (Days)	Course Frequency	Language(s)	Duration (Days)	Course Frequency	Language(s)	Duration (Days)	Course Frequency	Language(s)	Duration (Days)
Automation (EDP)												
Application of the BLAISE system	1	M	5							1	M	5
Relational Databases										1	E	3
Application of the SAS System	1	E	5	1	F	5						
Economic and Social Analysis (ESO)												
Demographic Data Analysis										1	E	5
The Construction and Use of Level of Living Indicators										1	E	5
European Integrations (EUR)												
The Functioning of the EC and its Statistical System	3	M	5	3	M	3-5	2	M	3	2	M	3
The European System of Integrated Economic Accounts (ESA)	1	M	5	1	M	5						
The Implementation of the Revised European System of Integrated Economic Accounts (ESA)										2	EFD	5
The INTRASTAT System				1	M	3	1	M	3	1	M	3
Using Eurostat Statistics							1	F	3	1	F	3
Pilot Surveys for the Service Sector										1	M	3
Management and Policy (MAP)												
Principles and Techniques of Statistical Project Management										1	E	4
Official Statistics (OFF)												
National Account Statistics in Practice	1	E	8	2	EF	8	1	E	8	1	E	8
The Set-up and Use of Registers										2	DE	5
Statistical Techniques (TEC)												
Exploratory Data Analysis	2	FD	5									
Sampling Techniques and Practice	1	F	15	2	EF	15	2	EF	15	2	EF	15
Applied Time Series Analysis	1	E	5	1	F	5	2	EF	5	2	EF	5
Introduction to Applied Time Series Analysis										1	E	5
Advanced Methods in Applied Time Series Analysis										1	F	5
Index Number Theory and Practice				1	D	5	2	EF	5	1	F	5
Theory and Application of Household Panel Surveys				1	E	9	1	E	9	1	E	9
Measurement in Surveys				1	E	5	1	E	5	1	E	5
Dealing with Non-Response							1	E	3	1	E	3
Classifications: One Language and one Structure							1	F	5	1	F	5
Seminars												
International Comparison of Survey Methodologies	1	M	3									
Statistical Project Management	1	M	3									
Strategic Issues in Statistical Policy	1	M	3									
Dissemination Policy for NSI Outputs	1	M	3									
Quality Control of Statistics				1	M	3				1	M	3
Environmental Statistics							1	M	3			

Note: D = German, E = English, F = French, M = Multilingual (as a rule English, French and German)

Table 2. Summary of participation in 1991-1992 programme

	Number of Courses	PARTICIPATION PER REGION AND PER MAIN TRAINING AREA											
		TOTAL			EC			EFTA			ECO		
Number of Countries		25			12			5			6		
Training Areas		Total Nr	Per Course	Per Country	Total Nr	Per Course	Per Country	Total Nr	Per Course	Per Country	Total Nr	Per Course	Per Country
EDP	2	38	19,0	1,5	32	16,0	2,7				6	3,0	1,0
ESO								10	2,0	2,0	15	3,0	2,5
EUR	5	161	32,2	6,4	136	27,2	11,3						
MAP								4	4,0	0,3	9	9,0	1,5
OFF	1	24	24,0	1,0	11	11,0	0,9	1	0,3	0,2	5	1,3	0,5
TEC	4	52	13,0	2,1	46	11,5	3,8						
TOTAL	12	275	22,9	11,0	225	18,5	13,8	15	1,3	3,0	35	2,9	5,3
SEMINAR	4	152	38,0	6,1	119	29,3	9,9	15	3,8	3,0	15	3,3	2,5
GRAND TOTAL	16	427	26,7	17,1	344	21,5	23,7	30	1,9	6,0	50	3,1	8,3

Table 3. Summary of participation in 1992-1993 programme

	Number of Courses	PARTICIPATION PER REGION AND PER MAIN TRAINING AREA											
		TOTAL			EC			EFTA			ECO		
Number of Countries		25			12			7			6		
Training Areas		Total Nr	Per Course	Per Country	Total Nr	Per Course	Per Country	Total Nr	Per Course	Per Country	Total Nr	Per Course	Per Country
EDP	2	42	21,0	1,7	27	13,5	2,3	5	2,5	0,7	8	4,0	1,3
ESO								22	4,4	3,1	18	3,6	3,0
EUR	5	151	30,2	6,0	108	21,6	9,0						
MAP								4	2,0	0,6	9	4,5	1,5
OFF	2	46	23,0	1,8	33	16,5	2,8	15	2,1	2,1	39	5,6	6,5
TEC	7	128	18,3	5,1	74	10,6	6,2						
TOTAL	16	367	22,9	14,7	242	16,5	20,2	46	2,3	6,6	74	11,3	12,3
SEMINAR	1	55	55,0	2,2	34	34,0	2,8	10	10,0	1,4	7	7,0	1,2
GRAND TOTAL	17	423	24,8	16,9	276	16,2	23,0	56	3,3	8,0	81	4,8	13,5

Table 4. Summary of participation in 1993-1994 programme
(preliminary figures)

	Number of Courses	PARTICIPATION PER REGION AND PER MAIN TRAINING AREA											
		TOTAL			EC			EFTA			ECO		
Number of Countries		25			12			6			7		
Training Areas		Total Nr	Per Course	Per Country	Total Nr	Per Course	Per Country	Total Nr	Per Course	Per Country	Total Nr	Per Course	Per Country
EDP	3	74	24,7	3,0	27	9,0	2,3	6	2,0	1,2	41	13,7	6,8
ESO	2	61	30,5	2,4	21	10,5	1,8	7	3,5	1,4	33	16,5	5,5
EUR	3	125	41,7	5,0	87	29,0	7,3	11	3,7	2,2	27	9,0	4,5
MAP	1	33	33,0	1,3	16	16,0	1,3	1	1,0	0,2	16	16,0	2,7
OFF	3	74	24,7	3,0	33	11,0	2,8	10	3,3	2,0	31	10,3	5,2
TEC	8	165	20,6	6,6	69	8,6	5,8	30	3,8	6,0	66	8,3	11,0
TOTAL	20	522	26,6	21,3	253	12,7	21,1	65	3,3	13,0	214	10,7	35,7
SEMINAR	1	16	16,0	0,6	5	5,0	0,4	2	2,0	0,4	9	9,0	1,5
GRAND TOTAL	21	548	26,1	21,9	258	12,3	21,5	67	3,2	13,4	223	10,6	37,2

Note:

EDP	= Automation	EC	= Member States of the European Community	
ESO	= Economic and Social Analysis	EFTA	= Member States of the European Free Trade Association	
EUR	= European Integration	ECO	= Transition Countries Central Europe	
MAP	= Management and Policy			
OFF	= Official Statistics			
TEC	= Statistical Techniques			