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# Towards the Integrated Monitoring & Evaluation System IMES: A Real Power Kostas

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# Towards the Integrated Monitoring & Evaluation System IMES: A Real Power

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#### **Abstract**

Within the last decade many projects have been implemented in order to provide Technical Assistance (TA) to countries, which have initiated their transition from centrally planned to market economies (mainly countries of Eastern Europe being previously under the Soviet regime). The pace and the degree of success of the transition, which these economies and -most important- their societies are undergoing, will certainly have an impact on the Global economy, politics, social security, democracy and peace.

The monitoring and evaluation exercise aims at assisting these TA projects in achieving their objectives, by providing management information on the projects' implementation, so that structured management decisions can be taken, if and when needed. In this framework, the necessity for the creation of an overall M&E database system emerged.

**Keywords:** IMES, Monitoring, Evaluation, Technical Assistance

## 1. The role of Technical Assistance Programmes/Projects

The basic role of the Technical Assistance Programmes (i.e. Tacis, Phare, USAID, etc.) is to assist and support these countries in achieving their transition targets and to strengthen their democratic societies based on political freedoms and economic prosperity. Technical Assistance Programmes, consisting of a comprehensive series of projects created to address the countries' needs, provide support in the form of grant finance to foster the exchange of knowledge and expertise through partnerships, links and networks at all levels of society. This know-how is delivered in a number of ways, known as the Programmes' Techniques. These are:

**Table 1. Technical Assistance Programmes' Techniques** 

To provide:	To develop:	To set up:	
<ul> <li>policy advice</li> <li>advisory &amp; consultancy teams</li> <li>training</li> <li>studies</li> </ul>	<ul> <li>new legal and regulatory frameworks</li> <li>new &amp; reformed institutions</li> <li>non-governmental organisations</li> </ul>	<ul> <li>partnerships and networks</li> <li>twinning</li> <li>pilot projects</li> <li>framework programmes for fast interventions in specific key areas</li> </ul>	

# 2. Monitoring & Evaluation of Technical Assistance projects

The "Monitoring & Evaluation" function (M&E) can be seen as a project management tool that helps in seeing whether each TA project is being developed as per its design. M&E's

objective is to enable focused project management decisions in order to allow adjustments to be made with minimal disruption and ensure that projects remain on course and reach their objectives. M&E teams, which carry out systematic on-the-ground monitoring and evaluation of the Programmes' projects, aim at improving project performance, by timely providing relevant information and recommendations to the Programmes' services.

The most important monitoring and evaluation activities during the various phases of each TA project are :

**Table 2. Key Monitoring & Evaluation Activities** 

Table 2. Key Monitoring & Evaluation Activities						
Project Launching Phase	Start-up and Implementation Phase	<b>Completion Phase</b>				
Receiving / obtaining information on: • ToR,SoE, Objectives, Wider results, impact expected	Attendance to project meetings (kick-off, Inception, Progress) and events (seminars, presentations, etc.)	Attendance to the End-of- Project presentation				
<ul><li>Benchmark dates</li><li>Contractor selected</li></ul>	Studying project's Technical & Management Reporting	Studying the Final Report and Project Completion Report				
<ul> <li>Organisation and methods applied</li> <li>Programming of activities &amp; outputs</li> </ul>	Implementation of field visits: meetings & interviews with the key actors (contractor, Project Partner, other) & target groups	Project Assessment field visit: interviews with the key actors				
Preliminary contacts with the Project Task Manager	Assessment of the Project Progress, as compared to the specifications and planning set	Assessment of Project Performance, Appropriateness for the Partner, Impact, Replicability, Dissemination of results				
Initial planning of the monitoring activities	Preparation of monitoring reports with standardised content and format and dissemination of the reports to all specified recipients of theirs, within clearly set time limits					
	progress between	Implementation of the Evaluation visit, at a specified time after project completion				
		Evaluation of the project's impact and of the sustainability of its results and preparation / dissemination of an Evaluation report (as above)				

# 3. IMES: A powerful M&E Information System

#### 3.1 General

The IMES is a dynamic integrated Monitoring & Evaluation System and it was developed for the needs of the European Commission (DG1A). Its operation is focused on the M&E exercise implemented in the NIS (New Independent States) and its main objectives are to improve the Management Reporting on Tacis progress and results and to provide support to the Tacis management decision making, in the direction of:

☑ Extraction of relevant information on projects' performance from the monitoring and evaluation reports
 ☑ Production of overall statistics at NIS level

The support to the Tacis management decision making concern mainly with the future TA projects launching, the allocation of funds, the maximization (or minimization) of the provision of Technical Assistance to specific regions/countries/sectors, measures to be taken related to specific problematic TA projects.

#### 3.2 IMES Architecture

The IMES is an Integrated Information System which incorporates Internet technologies in order to provide wide monitoring and evaluation capabilities. It consists of five individual, but interacting, subsystems which form a robust Intranet Information System. The structure of the system is presented in the following figure.

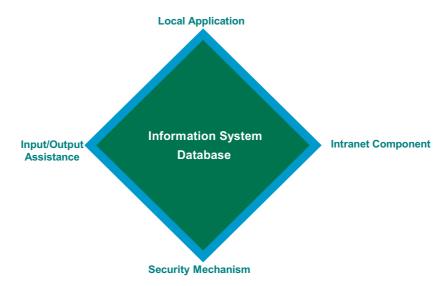


Figure 3. The structure of the system

#### 3.2.1 The Information System Database.

It is the "back end" application that is used for storing all kinds of data. It is built in MS Access 7.0 and structured according to the Relational Model into entities and relationships. The entities that are used are:

- ➤ Project: This entity stores the identity data of the Tacis projects including the Contract Number, Project Title, Sector, Sub-sector, Country, Location, EC Task Manager, Project Start & End Date, Status.
- ➤ Inception Report: This entity contains the most important information from the Inception Report. It is joined with an "one to one" relation with the Project entity, because there is only one Inception Report in a project's lifetime. This entity also stores data concerning the path and the name of each Inception Report document.
- Monitoring Report: This entity contains the most important information from the Monitoring Report. It is joined with an "one to many" relation with the Project entity, because there may be more than one Monitoring Reports in a project's lifetime. This entity also stores data concerning the path and the name of each Monitoring Report document.
- ➤ End of Project Assessment Report: This entity contains the most important information from the Assessment Report. It is joined with an "one to one" relation with the Project entity, because there is only one Assessment Report in a project's lifetime. This entity also stores data concerning the path and the name of each Assessment Report document.
- ➤ Comments on Contractor's Report: This entity contains the most important information from the Comments on Contractor's Report. It is joined with an "one to many" relation with the Project entity, because there may be more than one Comments on Contractor's Reports in a project's lifetime. This entity also stores data concerning the path and the name of each Comments on Contractor's Report document.
- ➤ Briefing Note: This entity contains the most important information from the Briefing Note. It is joined with an "one to many" relation with the Project entity, because there may be more than one Briefing Notes in a project's lifetime. This entity also stores data concerning the path and the name of each Briefing Note document.
- ➤ Kick-off Meeting Report: This entity contains the most important information from the Kick-off Meeting Report. It is joined with an "one to one" relation with the Project entity, because there is only one Kick-off Meeting Report in a project's lifetime. This entity also stores data concerning the path and the name of each Kick-off Meeting Report document.

The Entities - Relationships (E-R) model of the Information System Database appear in the following figure.

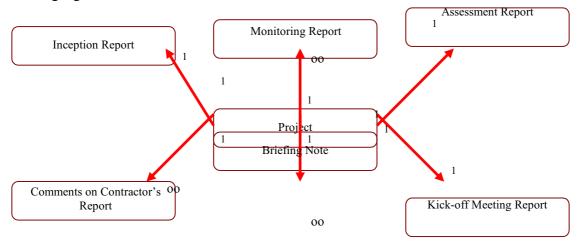


Figure 4. The model of the information system database

The IMES database is populated with: 1) 3816 M&E Projects, 2) 5565 M&E Reports (of any kind) covering a 5-year Technical Assistance period. The following Table presents analytically all the content of the system database.

Table 5. The content of the system's database

Total Number of Projects:	2003
Assessment Reports (ARs):	809
Monitoring Reports (MRs):	2027
Inception Reports (IRs):	535
Briefing Notes (BNs):	525
Comments on Contractor's Report (CCRs):	1341
Kick-off Meeting (KOs)	133
Other Reports:	195
Total Number of Reports (Word files):	5565

All the reports included in the IMES database have been produced within the period from March 1994 until March 1999 and have been available in electronic form (Word files).

# 3.2.2 The Local Application.

It is the "front end" application, built in MS Visual Basic and used for controlling and managing the stored data. This application enables direct access to the system database through a very friendly user interface. The interface offers an alternative database updating method, combined with great searching capabilities. It also acts as a control agent for the input and output assistants. Analytically, the operations that are supported by the local agent are:

- √ File Manager capabilities for storing the M&E Reports.
- √ Searching and browsing the M&E Reports.
- √ Ability to insert, delete and update the stored data.
- √ Provision of an interface for querying the database.
- √ Interaction with MS Office Applications in order to provide specific reports.
- √ Control of the Input and Output Assistants.
- $\sqrt{}$  Ability to compact and maintain the Database.

#### 3.2.3 Input / Output Assistants.

The Input Assistant is a separate tool for loading data from the M&E Reports to the system database. Since all the M&E Reports have been written in MS Word Templates, Active-X Controls (together with OLE Technology) was used in MS Word Templates in order to enable automatic data entry procedures.

The Output Assistant interacts with MS Office Applications in order to provide specific reports, combining data from the M&E Reports. The provided reports are easy to maintain, since they are exported to common office applications, like MS Word and MS Excel. On the other hand, the Output Assistant includes the Report Generator, which is a tool for preparing statistical reports. The Report Generator is developed in MS Access and provides extended querying and reporting capabilities through an easy interface.

#### 3.2.4 The Intranet Component.

The Intranet Component is located on the network Web Server, enabling the authorised Internet users to have access to the System Database. It consists of parameter queries that are executed from common Web Pages. These Web Pages can be accessed from the network server IP Address, using the "http" protocol. The VB Script language, which lays on these Web pages, submits calls to the system database using ODBC driver technologies. The System Database receives the calls, executes the appropriate queries and exports the results in \*.Html formats.

The following figure presents the "Home" Web page of the IMES in the Internet world.

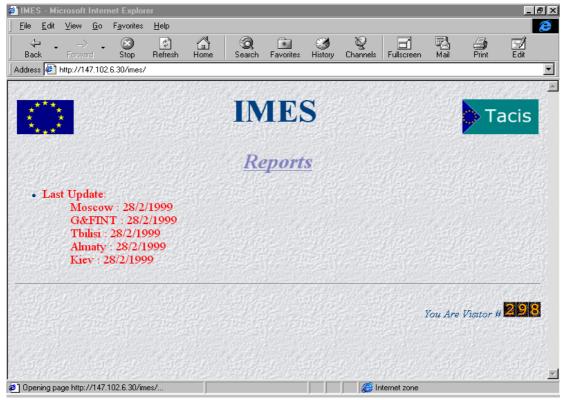


Figure 6. IMES home page

#### 3.2.5 The Security Mechanism.

In general the System Database is isolated of everyone else except for the IMES Administrator. The Local Application has a "built-in" security mechanism, which provides safety to the stored data and documents. The security system supports specific users groups to which all the authorised users belong. Each user group has specific permissions for browsing the stored data. Internet users have read-only access to the System Database, while only the official IMES Administrator is able to delete data in specific occasions.

# 4. The Operational Capabilities of IMES

The IMES provides the authorised Internet users with four important functions/outputs, as described here below:

**Table 7. IMES functions - outputs** 

Table 7. INTES functions - outputs			
Functions	Outputs		
Statistics Production	<ul> <li>Monthly Statistics for Total Tacis</li> <li>Monthly Statistics per country/sector</li> <li>Cumulative Statistics for Total Tacis</li> <li>List of Problematic Tacis Projects Monitored</li> <li>Monitoring Scores per Indicator for each type of Monitoring Report</li> <li>Monthly Performance Indicators per region, country, sector</li> <li>Cumulative Performance Indicators per region, country, sector</li> </ul>		
Projects Searching	All Tacis projects implemented in the NIS		
Documents Searching & Downloading	All Monitoring Reports (of any kind) produced from March '94 till March '99		
Documents Browsing & Downloading	All Evaluation Reports and other Reports		

The following figure presents the basic Web page, which shows the IMES functions.



Figure 8. The IMES functions

#### 4.1 Statistics Production

The system gives the client the opportunity to produce seven categories of standard-format statistical reports related to the performance of the Tacis Programme, as well as to the performance of the implemented Tacis projects. These reports present specific Performance Indicators (Monthly or Cumulative) per region, country, sector, status, the values of which are defined by the Monitoring Scores included in the produced M&E reports through appropriate formulas.

The following figure presents a real example of the production of one type of these reports.

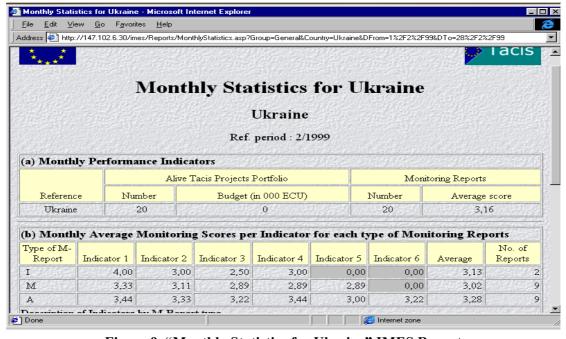


Figure 9. "Monthly Statistics for Ukraine" IMES Report

The above presented statistical report gives valuable information on the implementation of the Tacis Programme in Ukraine in February '99. In this case, the average score of the Monthly Performance Indicators ("3,16") shows that there is a success in the implementation of the Tacis Programme in Ukraine in February '99 ("5" means great success and "1" means catastrophe). On the other hand by studying the Monthly Average Monitoring Scores per Indicator, the client (European Commission) can directly discern the phase in which the Tacis Programme faced problems (score < "3") and take corrective measures.

The statistical report, which significantly differs from the other ones concerning its content, is the "List of Problematic Tacis Projects Monitored".

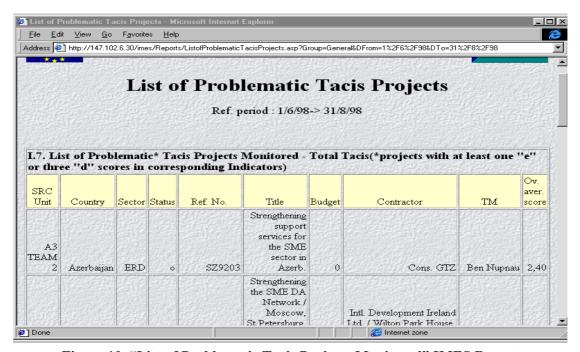


Figure 10. "List of Problematic Tacis Projects Monitored" IMES Report

The client can have a list with all the problematic Tacis projects on a monthly basis (or at a lower frequency), on the basis of which he can take measures against the projects' contractors.

Moreover, IMES can produce statistical reports with comparative data related to regions, countries, sectors, supporting the client to form specific strategies and launch new projects.

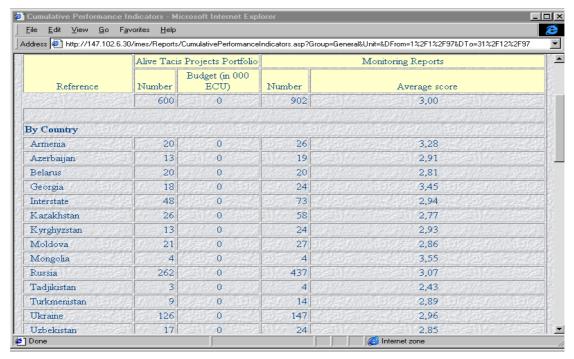


Figure 11. Another IMES Report

Apart from the Commission services, the statistical outputs recipients are:

- Task Managers of SCR A3 & A6
- ♦ The Evaluation Unit
- ♦ EC Delegations in the region

# 4.2 Projects Searching.

The system provides the client with the capability to search in the IMES database for any Tacis project implemented since 1993, by specifying any of the adopted search criteria.

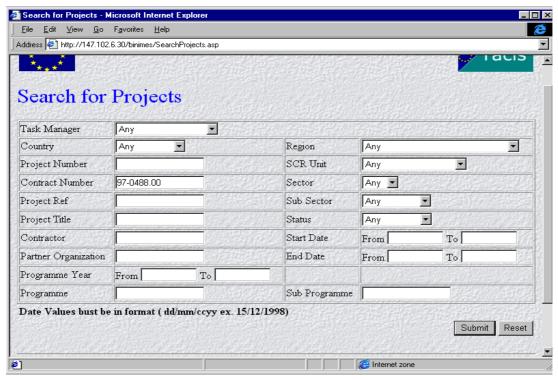


Figure 12. Projects Searching Machine

After having found the requested Tacis project (title, country, sector, start/end date), the client can automatically download all the M&E reports related to this project.

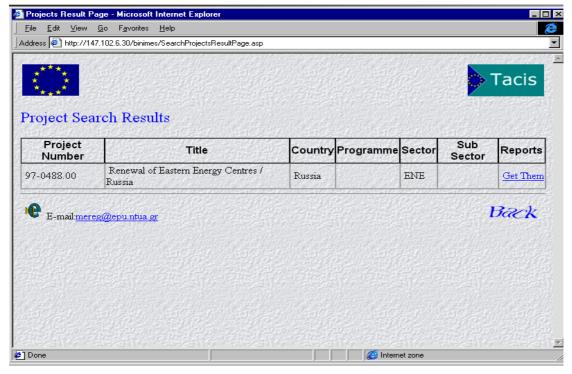


Figure 13. Project Search Results

# 4.3 Documents Searching & Downloading.

The client is also provided with the capability to search in the IMES database for any kind of Monitoring Reports produced since March '94, by specifying any of the adopted search criteria. Moreover, the client can sort the search results by using any of the sorting criteria (region, country, sector, report date, title).

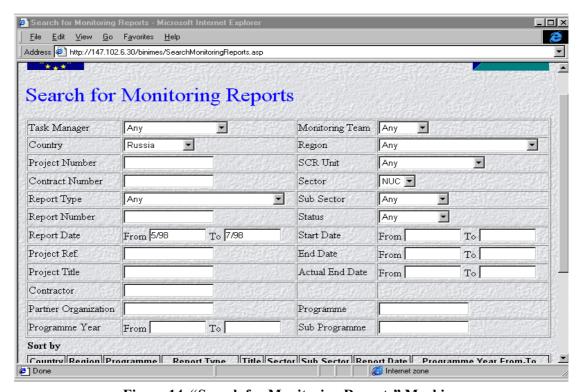


Figure 14. "Search for Monitoring Reports" Machine

Automatically a list of all the relevant reports appears and the client can download each of them.

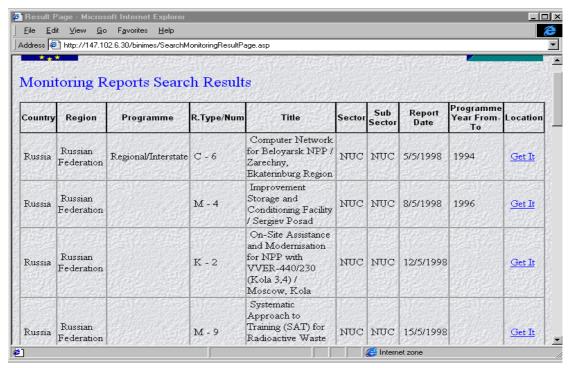


Figure 15. Monitoring Reports Search Results

#### 4.4 Documents Browsing & Downloading.

The system gives the possibility to the client to browse in a detailed list of Evaluation Reports produced since 1994 and download them.

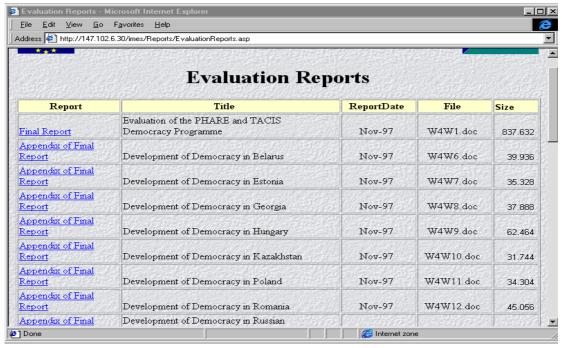


Figure 16. "Evaluation Reports" Browser

#### 5. The Evolution of IMES

The system started to be designed and developed in November 1997. The first stage of the development approach was the study and analysis of the client's requirements. Two basic questions were posed relating to the client's requirements:

- Which are the main requirements set by the client?
- Will this set of requirements, if implemented well, result in a system that will meet the users' needs?

The standard requirements analysis (RA) conceptual framework is presented in the following table.

**Table 17. RA Conceptual Framework** 

Goal	Task	Functional Requirements	System
Requirements	Requirements		Requirements
System objectives & Users' needs	Task activities to achieve goal requirements	General system functions for helping users achieve their task requirements	What the system needs to do to implement required tasks and achieve the task and goal requirements

The results of this analysis are presented here below.

#### Goal Requirements:

- 1. Improvement of the Management Reporting on Tacis progress and results.
- 2. Improvement of the Management of the Monitoring Contracts.
- 3. Future planning of further Tacis activities in the NIS.

#### Task Requirements:

- 1. Study of relevant information on Tacis projects' performance
- 2. Analysis of overall statistics at NIS level
- 3. Study of specific information (countries' profiles, important sectors, etc.) in the NIS.

#### Functional Requirements:

- 1. Provision of relevant information and data on Tacis projects' performance from the M&E reports
- 2. Provision of overall statistics at NIS level

#### System Requirements:

- 1. Provide the user with the ability to search for Monitoring Reports
- 2. Provide the user with the ability to search for monitored Tacis projects
- 3. Produce specific statistical information at NIS level

4. Provide the user with the ability to find Evaluation Reports and Sectoral Reports

The following stage of the development approach was the design and implementation of the IMES interface. The following fundamental principles concerning the design of effective interfaces, either for traditional GUI environments or the web, were taken into consideration:

- Effective interfaces are visually apparent, instilling in their users a sense of control; users quickly see the breadth of their options, grasp how to achieve their goals and do their work.
- Effective interfaces do not concern the user with the inner workings of the system.
- Effective applications perform a maximum of work, while requiring a minimum of information from users.
- Interfaces should be user-centered designed.
- To most users, the interface is the system.

On the other hand, during the interface testing (usability evaluation) different criteria were used, including:

- √ Visibility of database status
- √ Match between system and the real world
- √ User control and freedom
- √ Aesthetic design
- √ Consistency
- √ Efficiency of use
- √ Readability
- √ Help and documentation

The following stage was the design and development of the system database, as well as the implementation of all necessary functions (queries, forms, formulas definition, etc.). The performance of the system was tested following the random testing method. 15 random real tasks were implemented for every function, which showed that the system is quite efficient, reliable and easy to use. The system's response times are rather low and appear reasonable to the user.

Eventual amendments and improvements to the IMES functions have been made, as the output of the unofficial presentations of the system to the client in Brussels. The system was officially released in September '99.

## 6. Welcome of the system by its users

During all the official presentations of the system in the European Commission, the system's clients welcomed the system and stressed the positive experience of theirs from its use. During the period from September '98 (when all the authorised clients were provided with

personal access codes) till March '99, 619 visits to the system were realised by its various clients. The following Figure presents the (%) number of visits per category of client.

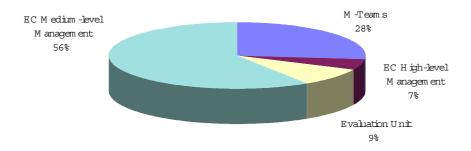


Figure 18. The (%) number of visits to IMES per category of client

It should be stressed that the M-Teams' use of IMES (through Internet) was limited due to the bad telecommunications in the NIS.

Concerning the time evolution of the use of IMES, the following Figure presents the realised number of visits per month.

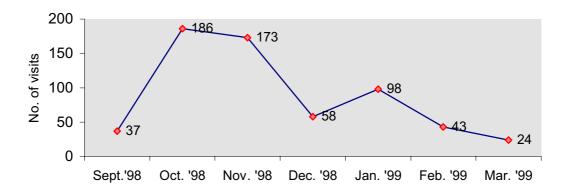


Figure 19. The realised number of visits to IMES per month

It is evident that the greatest number of visits took place in October '98, when all the clients had received their personal access codes and tried to navigate in the IMES database for their first time, while in December '98 a fall in the frequency of visits was recorded due to Christmas holidays.

On the other hand, the following Figure indicates the types of system's functions that the clients used during their direct visits to the system.

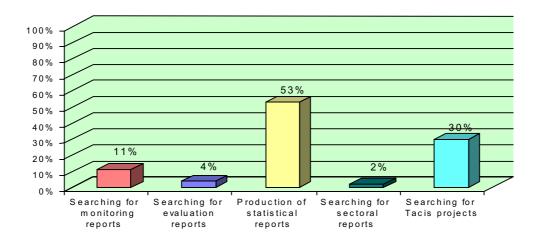


Figure 20. The types of system's functions used by clients

## 7. Today's Operation of IMES

Today, IMES is at a fully operational mode within a specific organisational framework, providing all its authorised users with its operational capabilities. In the first days of every month, the System Administrator collects all the required data (M&E reports, etc.) from the authorised data suppliers and controls their quality (conformity and consistency to the system) and completeness. The QC-passed data are entered to the database of the system while eventual problems are cleared with direct communication of the System Administrator with the data providers, so that the updating of the database is completed the soonest possible. It is noted that it is not allowed to anyone except to the System Administrator to enter and update the database of the system.

#### 8. Conclusions – Generalisations

In general, the IMES was evaluated as a very reliable Internet Monitoring & Evaluation Information System. Due to the careful design and the successful development, the system met the client's needs and appears to be a very efficient Decision Support tool. The attitude of the EC officials was very enthousiastic towards both the operation of the system and its outputs. Rightfully it was characterised as one of the best information systems ever developed for the needs of the European Commission.

The promotion of the IMES to all the foreseen EU recipients of the M&E outputs (EC Delegations, Co-ordinating Units, Technical Offices in the NIS) is expected to enhance the contribution of the system in facilitating the effective implementation of their activities.

Concerning the practical aspects of the IMES, the experience has shown that the system database is now needed to be partly restructured and up-graded because of the continuously increasing size of it. The database will be up-graded using Oracle (instead of Access) which is estimated to augment the speed of the system, while Delphi may be used for potential user's interface modifications.

Concerning future research on this area, it is estimated that this field of knowledge is quite fertile for further quantitative and qualitative exploitation. Taking into consideration that more than 500 Technical Assistance projects are launched each year by various donors all over the world (EC, USAID, World Bank, GTZ, etc.), advanced information systems related to IMES can be designed for different Monitoring & Evaluation conceptual systems implemented nowadays in selected countries in Asia, Mediterranean, Pacific and Latin America.

Nowadays, a similar information system is being developed for the monitoring of a huge Public Administration Programme in Lebanon (ARLA), while it is foreseen that a similar system will be built for the monitoring and assessment of Technical Assistance projects taking place in Central Europe and in Balkans under the Phare Programme. All these systems (IMES as well), using mathematical equations, can also provide valuable statistical information concerning the overall performance of the M&E teams, highlighting advantages and weaknesses of each of them.

A more ambitious attempt will include the extension of capabilities of such information systems, using Web technologies, so that the monitoring and evaluation of Technical Assistance projects becomes more "electronic" (called "e-monitoring") and paperless (the new stream in future project management activities).

Finally, advanced information systems like IMES, based in project management concepts in general, can be used in the internal, in-house monitoring and management of any project implemented in any country in the world.

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