



**Sustainable Water  
Integrated Management (SWIM) -  
Support Mechanism**



Project funded by  
the European Union

*Water is too precious to waste*

**M&E System Application To Monitor & Evaluate the  
Participatory Irrigation Management (PIM) and Irrigation  
Management Transfer (IMT) Process**

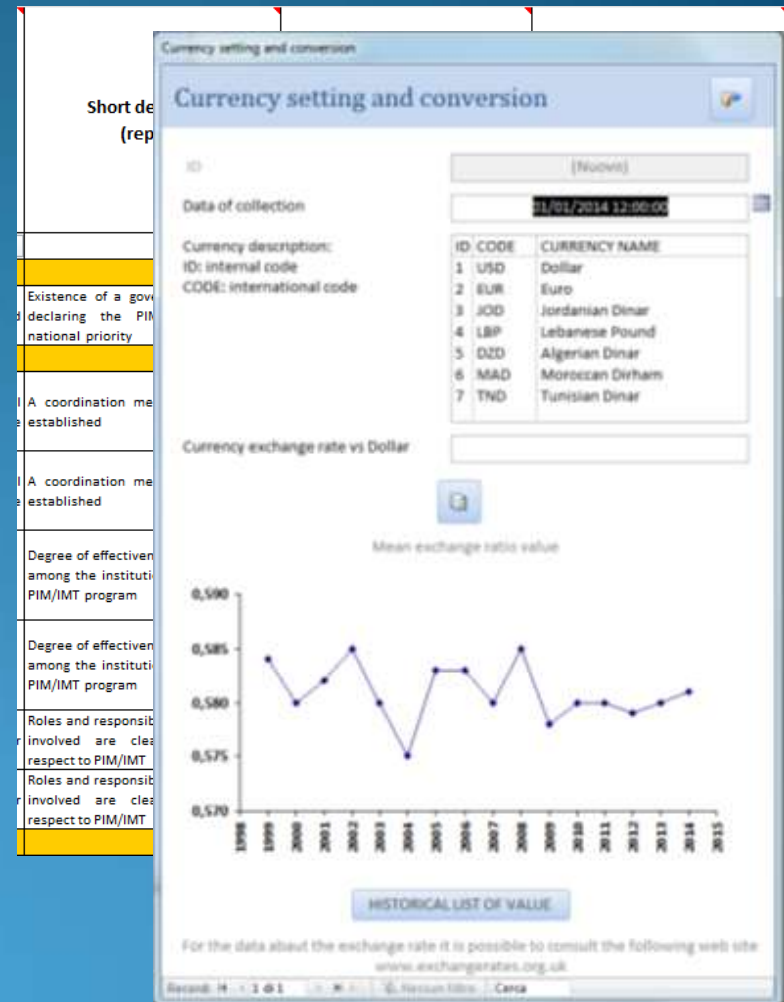
***3.2 M&E per outcome***

***This activity is implemented in collaboration with CIHEAM IAM Bari***

## Organization into outputs

The section containing the numerical indicators includes all the variables needed for the calculation of the indicator. This set of tables is used in the field to collect the required data. The tables have internal validation capability in case that responses are not framed within the expected answer.

The system is capable of processing the information collected in the field and produce a complete list of the values of the indicators grouped by outcomes and outputs. For those “Numerical Indicators” or “Information Data” or variables where data may be available for several years the system should be able to generate graphs with trends.



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M&E SYSTEM APPLICATION TO MONITOR & EVALUATE PIM AND IMT PROCESS

## Indicators per output

The system is able to make an evaluation of the results obtained for the indicators according to established criteria.

The evaluations at the level of indicator are aggregated at the level of output and outcome.

The reports illustrate the outputs and results after the appropriate calculation procedures carried out by the information system.

MONITORING		
Outcome	Output	Indicator
A.1 - the implementation of the PIM program is reviewed annually	Agreement Data that ordering the PIM program's outcome priority to activities	A.1.1 - Success of agreement statement ordering the PIM program's nature and priority
<b>OUTCOME A1</b>		
A.2 - the PIM program has been institutionalized for the planning and implementation phase	Coordination mechanism is in place	A.2.1 - A coordination mechanism has been established A.2.2 - Degree of effectiveness of coordination among the institutions participating in PIM program A.2.3 - Roles and responsibilities of the main involved are clearly defined with regard to PIM program
<b>OUTCOME A2</b>		
A.3 - the PIM program is supported with a national PIM plan (with 2012 intervention)	A national PIM plan with financial and human resources allocated to evaluate	A.3.1 - A national PIM plan with financial and human resources allocated A.3.2 (AR) - Percentage of the annual budget allocated to the irrigation agency for the PIM program with respect to the budget two years ago A.3.3 (TRR) - Percentage of the total number resources allocated by the irrigation agency to the PIM program in last year with respect to two years ago
		<b>OUTPUT A3.1</b>
	Annual budget for institutional evidence	A.3.4 (AFAR) - Percentage of the annual financial allocation for the rehabilitation (AFAR) or replacement of the existing irrigation systems last year with respect to 2 years ago
		<b>OUTPUT A3.2</b>
<b>OUTCOME A3</b>		

REGIONAL AND LOCAL OFFICE LIST			
Regional and local office list			
REG CODE	REGIONAL NAME	LOC CODE	LOCAL NAME
<b>1 North Directorate</b>			
		2	North Shouneh ( DA 5)
		3	Al-Manshiyyeh Pump Station 14
		4	Sheik Hussein Pump Station 28
		5	Al-Mashare Pump Station 33
		6	Wadi Ar-Rayyan Pump Station 41
		1	North Shouneh ( DA 3, 4)
<b>2 Middle Directorate</b>			
		8	Al-kraymeh Pump Station 55
		7	Abu-Seido Pump Station 50
<b>3 Karameh</b>			
		10	Ghor Kabed Pump Station 91
		11	Ghor Kabed Pump Station 95
		12	Al-Kafrein
		13	Ar-Rama
		9	Ghor Kabed Pump Station 81
<b>4 South Directorate</b>			
		26	Al-Khunezeera
		34	Mazra'a, Haditha
		15	Feifa

Page 1 of 1  
sabato 31 maggio 2014

### Typology of requested input: Logical, Numerical and calculated

#### Type of input

The information that we want to acquire can be stored in different ways according to its nature, 4 type of input are considered:

**IL:** for logic input, normally an answer to a specific question (Yes or No);

**IN:** for numeric input (No. of people, a money value, areal measure, etc.)

**IQ:** for qualitative-coded input (normally a valuation question precompiled)

**CA:** for calculation, the field with this specifics, auto determinate their value through the use of a formula

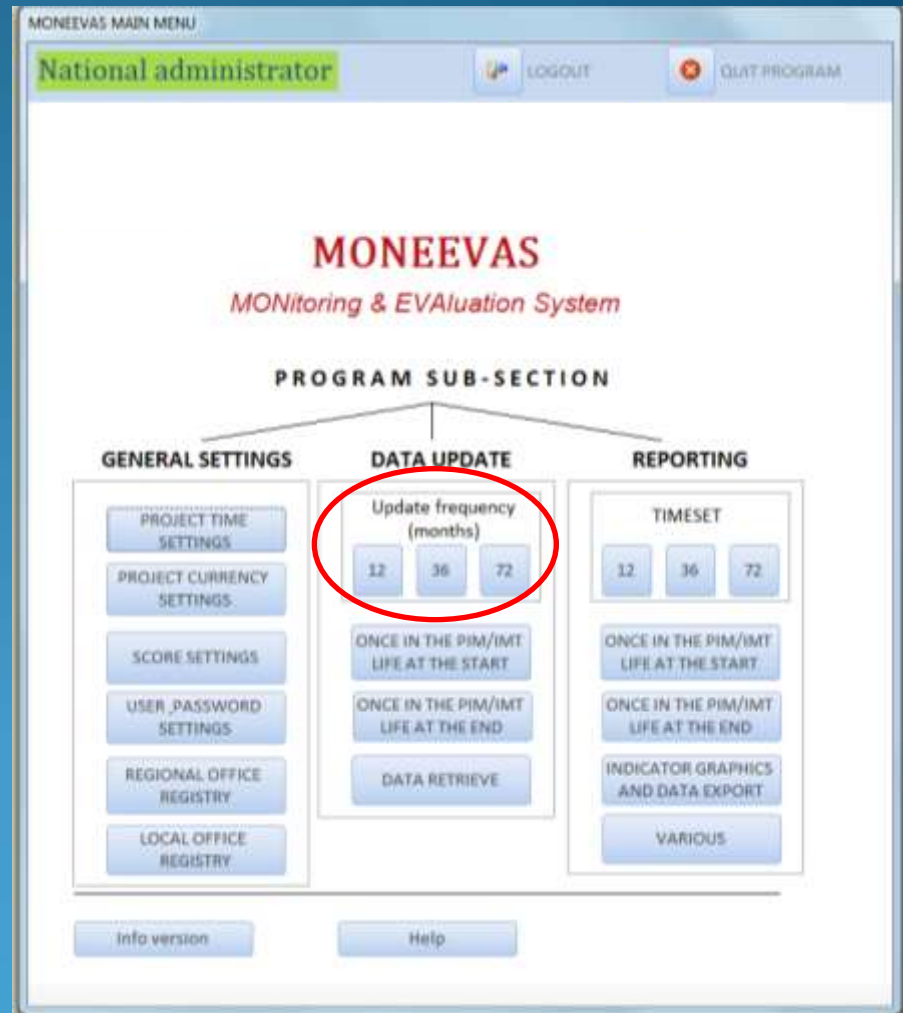
output/outcome MODULE	SUBJECT OF REQUEST	LEVEL OF AGGREGATION	TYPE OF AGGREGATION	LEVEL OF APPLICABILITY	REVISER	TYPE OF INPUT	FREQUENCY	GRAPHICS & REPORT	CODE	Acronyms for numerical indicators
A	N			N		IL	12		A01010	
A	N			NR		IL	36		A02010N	
	R	N	C	NR		IL	36		A02010R	
A	N			NR		IQ	12		A02020N	
	R	N	C	NR		IQ	12		A02020R	
A	N			NR		IL	36		A02030N	
	R	N	C	NR		IL	36		A02030R	
A	N			N		IL	36		A03010	
A	N			NR		IN	12		A03021N	AB1n
	R	N	S	NR		IN	12		A03021R	AB1r

## Frequency of monitoring and codification

The unit of frequency is in months, but the monitoring frequencies are every 12, every 36, every 72 months and once in the PIM/IMT lifetime.

You can also enter historical data through the input forms, thanks to which the database will be populated.

Simply select the desired frequency option, and the masks data entry will appear, organized according to the coding sequences and included in the database system structure



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### Frequency of monitoring and codification

After selecting the frequency, you will proceed to the selection of the reference and the data inputting, navigating through the fields tab: each value has its own field code, with its description, to ensure the best answer

National input mask - 12M

National input mask - time of update 12 months

GENERAL A B

ID 3

REFERENCE YEAR 2006

Record: 1 4 2 6 5 Cerca

National input mask - 12M

National input mask - time of update 12 months

GENERAL A B

2006

B03025N: Number of Government Staff at the Support Unit: fully dedicated to provide support to PIM/IMT program (NGSPIM/IMT) up to last year. For staff that is not working full time they should be converted to full time. Example: 4 persons working 1/2 time is equal to 2 persons full time. Staff of the support units can be at the local level, at the regional or national level at the headquarters of the irrigation agency. no. of people

B03026N: Number of Actual training days carried out for the staff of the Support Units during the last year. Note that the staff of the support units can be trained at the local level, and at the regional and national levels (at the headquarters of the irrigation agency) no. of day

B03032N: Number of Training Days Planned for the staff of the Support Units during the last year. Note that the staff of the support units can be trained at the local level, and at the regional and national levels (at the headquarters of the irrigation agency) no. of day

B03040N: Annual ME report is produced, with the results integrated into the annual workplan. "WUAs should produce an annual report with the results of the indicators and the corresponding evaluation integrated into the annual workplan and forming the basis for actions next year".  YES

B03050N: The government undertakes an evaluation of the rehabilitation/improvement needs for each irrigation system transferred? "The evaluation of the status of the irrigation systems is a technical study where the main problems of the irrigation infrastructure are identified with the associated cost of rehabilitation/improvement. Normally this is carried out together with the representatives of the WUAs".  YES

B03060N: The leaders of the WUAs and the representatives of the government meet to determine the priority works to be rehabilitated.  YES

ID 3

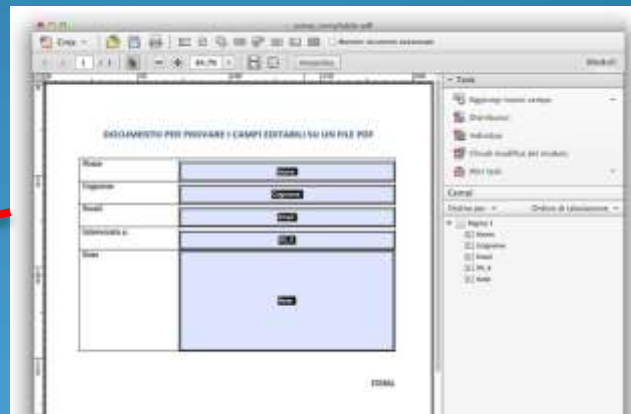
REFERENCE YEAR 2006

Record: 1 4 2 6 5 Cerca

## Level of aggregation and dependability on lower levels

Local units must follow the simple instructions to fill in the PDF file that will be assigned to them, follow the wizard to export data and send the file, which is their connection to the higher regional unit.

Regional Level



# Sustainable Water Integrated Management (SWIM)

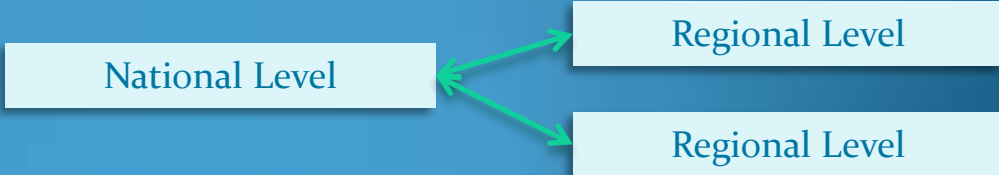
## Support Mechanism

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### Level of aggregation and dependability on lower levels

The level of aggregation between the regional level and the national level is through the software itself, which is the same at both levels, but with different functions depending on the level of authentication. The only location where you can see all the data aggregated is the national one, where such data are derived from: the regional stations will be able to have an overview only for their local units aggregated data.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
	OBJECTIVE REQUEST	SUBJECT OF REQUEST	LEVEL OF AGGREGATION	TYPE OF AGGREGATION	LEVEL OF APPLICATION	RETELE	TYPE OF INPUT	FREQUENCY	GRAPHICS & REPORT	CODE	F	A	G	R		Aliases for numerical indicators	UNIT	FORMULA	Pre-Conditional requirement	SCORE (FIRST 10 YEARS): 2	SCORE (FIRST 10 YEARS): 3	SCORE (FIRST 10 YEARS): 0	SCORE (AFTER 10 YEARS): 3	SCORE (AFTER 10 YEARS): 1	SCORE (AFTER 10 YEARS): 0
120	C	L				IN	12			CO0011	08	01	C	1		SP	no. of genetics								
121	C	U	R	A		R	CA	12	GO0001	PO0010	08	01	P	0		ChangePass	%	(CO001CO001)/P%							
122	C	L				IN	12			CO0021	08	02	C	1		SCPE	currency								
123	C	U				CA	12	GO0002		PO0020	08	02	P	0		PSCR	%	(CO002CO002)/P%							
124	C	L				IN	12			CO0031	08	03	C	1		VOCcontrol	adimensional								
125	C	U				CA	12			PO0030	08	03	P	0		VOCp	adimensional	P0000CO001		>=1	<=0.9	<=1	>=1	<=0.9	<=1
126	C	L				IN	12			CO0041	08	04	C	1		VOCcontrol	adimensional								
127	C	U	NR	A		R	CA	12		PO0040	08	04	P	0		VOCp	adimensional	P0000CO001		>=1	<=0.9	<=1	>=2	<=0.9	<=1
128	C	U	NR	A		CA	36			PO0051	08	05	P	1		RVControl	currency/hrs	$\frac{\sum_{i=1}^n \text{control}(x)}{\text{control}}$							
129	C	L	NR	S		R	IN	36	GO0001	CO0052	08	05	C	2		EMControl	currency/hrs								
130	C	U	NR	A		R	CA	36		PO0050	08	05	P	0		EMCR	adimensional	PO000CO002		>=1	<=0.9	<=1	>=1	<=0.9	<=1
131	C	L	NR	C		R	IL	36		CO0010	09	01	C	0						Y		N	Y		N
132	C	L	NR	C		R	IL	36		CO0021	09	02	C	1					CO0010V	Y		N	Y		N
133	C	L					IL	12		CO0022	09	02	C	2					CO0010V	Y		N	Y		N
134	C	L					IL	12		CO0023	09	02	C	3					CO0010V	Y		N	Y		N
135	C	L	NR	C		R	IL	12		CO0024	09	02	C	4					CO0010V	Y		N	Y		N
136	C	U	NR	A		R	CA	36		PO0030	09	03	P	0		EMControl	%		CO0010V	>=80	<=80	>=50	<=50	>=80	<=80





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Once you have finished entering data at the regional level, as for the case of the local procedures, the software installed at the regional level will export a file using a wizard



The file that will be created by the wizard is not editable for any of the following: name, extension and contents

## Pre-conditional requirement of application

The system requirements for the different levels, both in terms of hardware and software requirements are summarized in the following table:

LOCAL LEVEL	REGIONAL LEVEL	NATIONAL LEVEL
<p>To fill out the simple PDF form, the requirements are a Personal Computer running Windows or Mac or Linux Operating System, with the only feature to be able to run Adobe Acrobat Reader 9 or later versions.</p>	<p>The system requirements to use the selected database management software, are as follows:</p> <ul style="list-style-type: none"> <li>• 1 gigahertz (Ghz) or faster x86- or x64-bit processor with SSE2 instruction set</li> <li>• Required operating system: Windows 8, Windows 7, Windows Server 2008 R2 or Windows Server 2012</li> <li>• Required memory: 1 GB of RAM (32 bit); 2 GB of RAM (64 bit)</li> <li>• 3 GB of available hard-disk space</li> <li>• Graphics hardware acceleration requires a DirectX 10 graphics card and 1024 x 576 resolution</li> <li>• Required .NET version: 3.5, 4.0 o 4.5</li> <li>• Microsoft Access Runtime 2010</li> </ul>	<p>The system requirements to use the selected database management software, are as follows:</p> <ul style="list-style-type: none"> <li>• 1 gigahertz (Ghz) or faster x86- or x64-bit processor with SSE2 instruction set</li> <li>• Required operating system: Windows 8, Windows 7, Windows Server 2008 R2 or Windows Server 2012</li> <li>• Required memory: 1 GB of RAM (32 bit); 2 GB of RAM (64 bit)</li> <li>• 3 GB of available hard-disk space</li> <li>• Graphics hardware acceleration requires a DirectX 10 graphics card and 1024 x 576 resolution</li> <li>• Required .NET version: 3.5, 4.0 o 4.5</li> <li>• Microsoft Access Runtime 2010</li> </ul>

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Once the programming of the system, which is still in alpha testing, will be completed it will be distributed together with a PDF manual, consisting of two parts: a basic part and an advanced part: the first helps the local units, the second at regional and national levels.

At any level, local, regional or national, no specific programming skills are needed; it is sufficient to follow the instructions to implement the database and get all the information from the system.

For any future customization of the data and/or reports structure, what you need is a Microsoft Access 2010 software license, and then to provide for the distribution of the installation package to all hierarchical levels, regional and national



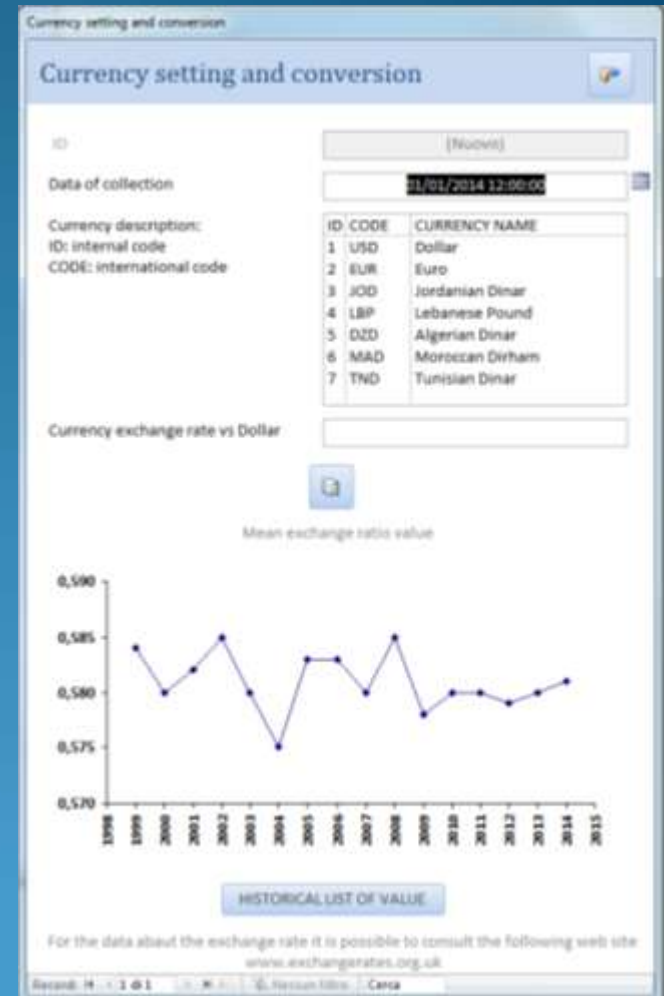
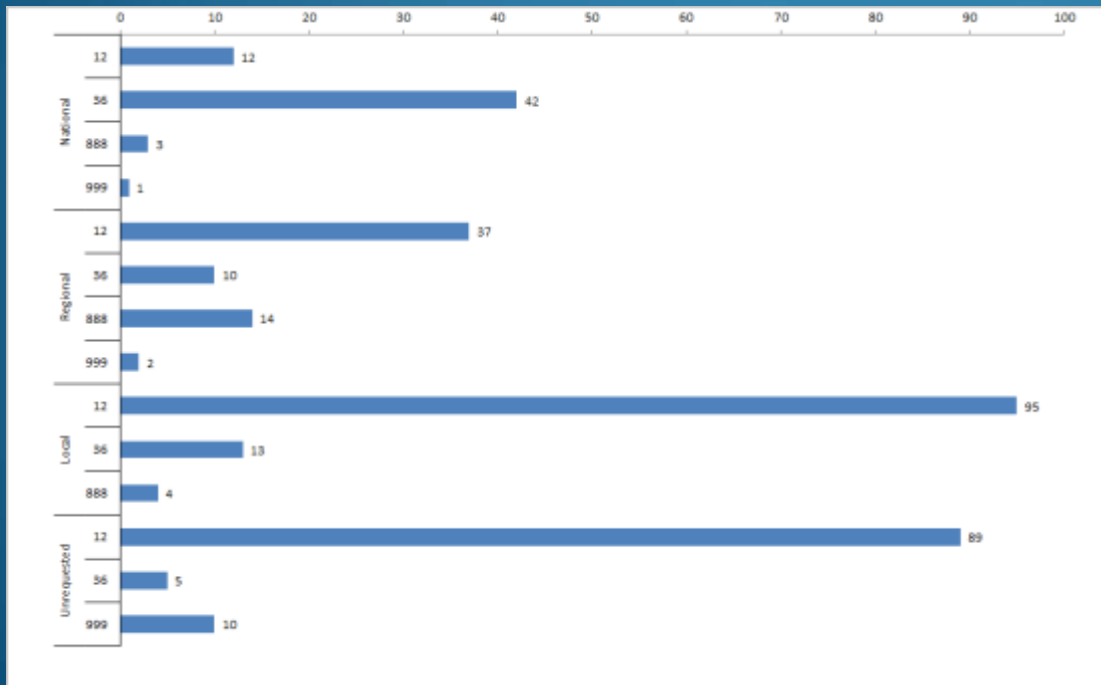


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## Annual Reporting, multiyear trend and archived info

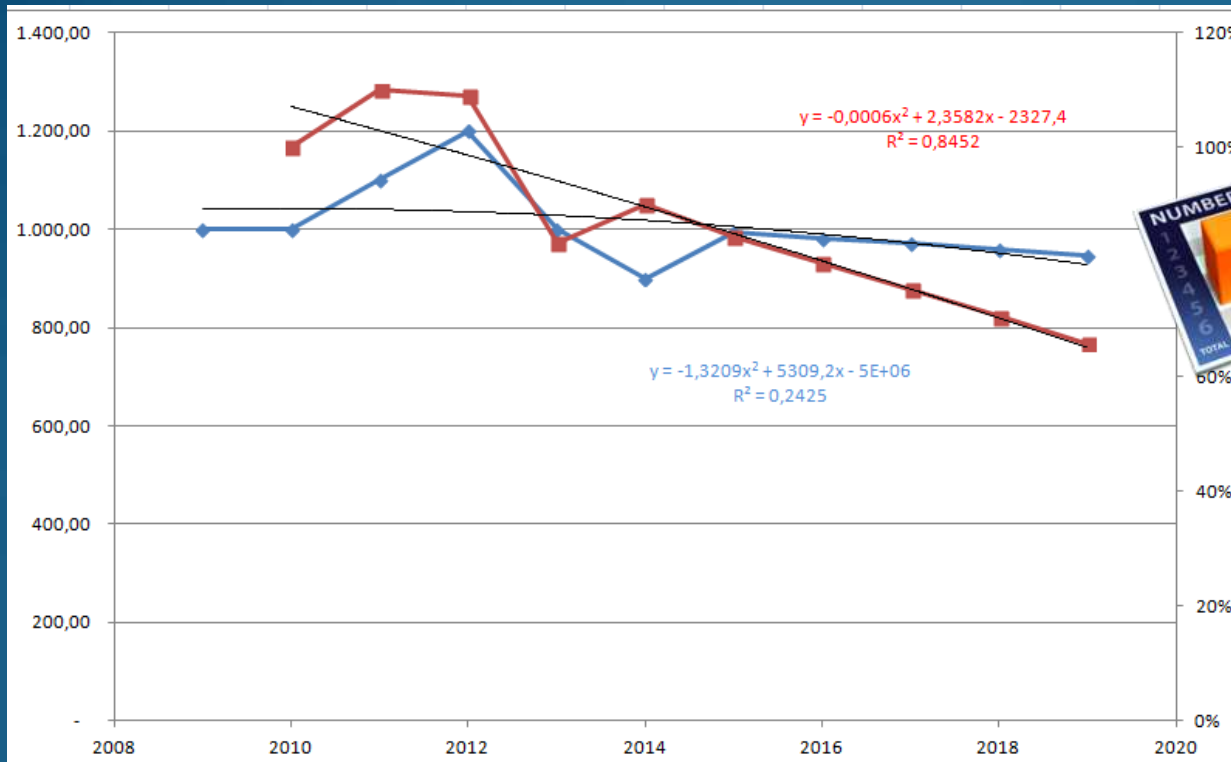
For every hierarchical level you can get the report to display the data, indicators, results and scores: this greatly facilitates the interaction with the system, at regional and national level, and makes possible an estimate of the expected results.



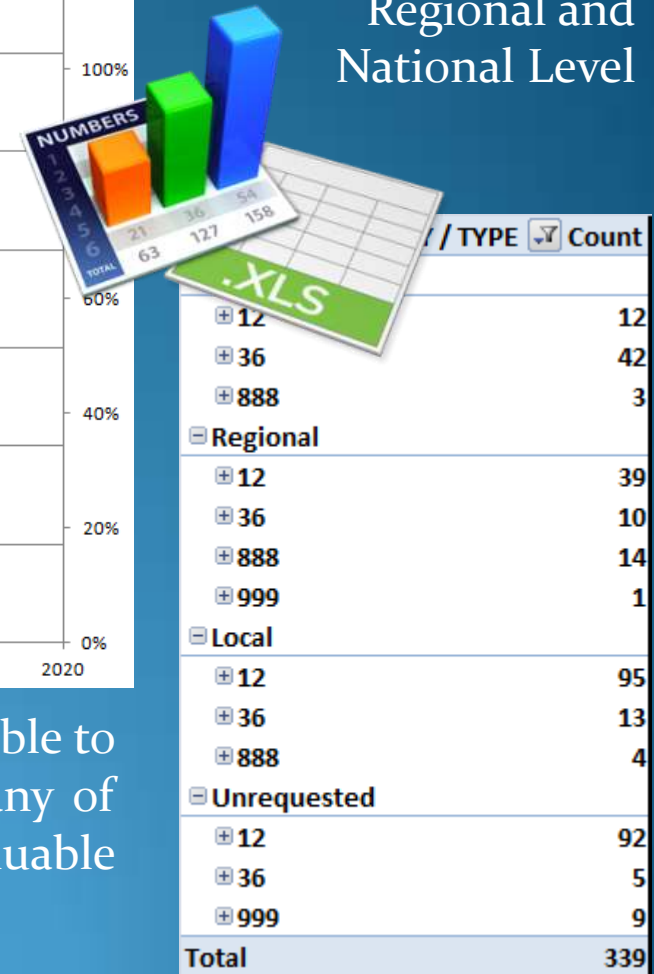
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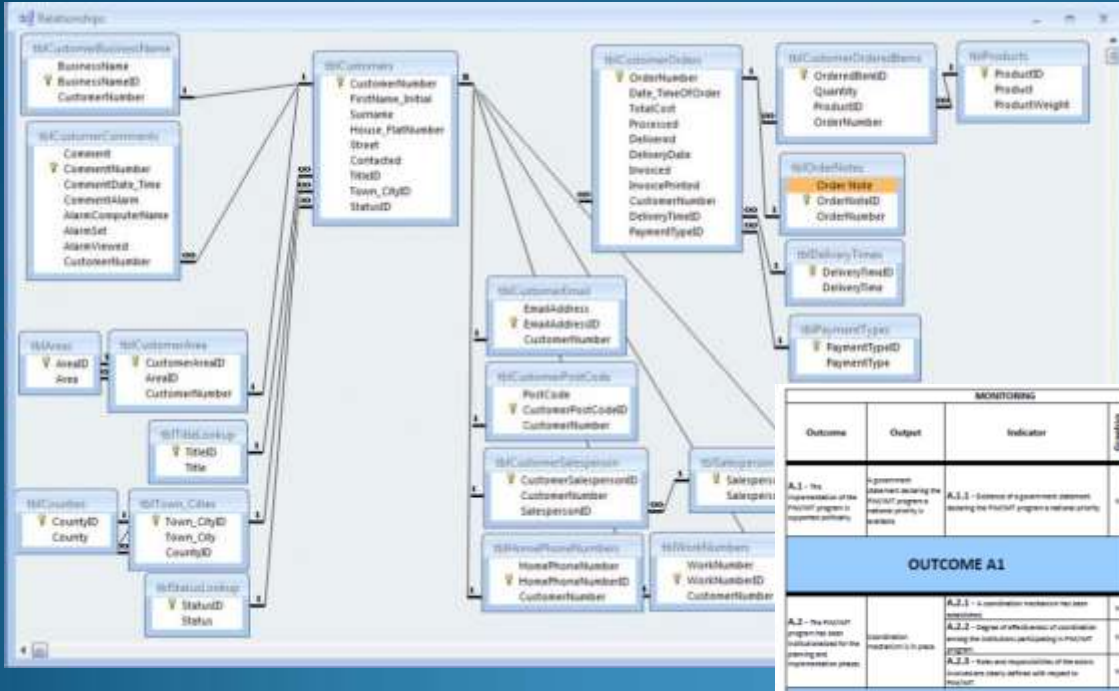
Creating Graphics at Regional and National Level



Once you have the data for several years, you will be able to compare the data, creating reports and charts for any of the variables and data available, and offer a valuable decision support, also exporting data in Excel format.

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The system structure at the regional and national level contains relations and processes that integrate the data and make them viewable through reports and graphs

MONITORING						EVALUATION		
Outcome	Output	Indicator	Completion	Score system (target)	Total	Max score	Evaluation	Comments
A.1 - the implementation of the PIM/IMT program is supported primarily	Government agreement regarding the PIM/IMT program's national priority or strategy	A.1.1 - Existence of government agreement defining the PIM/IMT program's national priority	100	100	100	100	Score 2 means the activity has been defined and the output achieved. Score 1 means the output has not been achieved.	The fact that government needs support their support to the PIM/IMT program is a positive sign practice but its absence does not necessarily mean that the program is not supported. Therefore the score '0' means only that the government does not want to make support to policy although still it may support the PIM program.
<b>OUTCOME A1</b>								2
A.2 - The support program has been implemented for the planning and implementation phase	Coordination mechanism in place	A.2.1 - A coordination mechanism has been established. A.2.2 - Degree of effectiveness of coordination among the institutions participating in PIM/IMT program. A.2.3 - Roles and responsibilities of the main institutions are clearly defined with respect to PIM/IMT	100	100	100	100	Score 2 means inputs from different government agencies are properly coordinated, well in time and line of command is correct. Score 1 means it is partially coordinated and will be necessary to look to the specific indicator to identify where the deficiencies are. Score 0 means that the coordination is not present.	



The indicator above is the indicator that is monitored, if the value is 0 the indicator has 0 score achieved.	
A proposed costing system for indicators is 0.2 and 0.4, it is needed to the age of the PIM/IMT program, an annual costing trend in the situation of financial and human resources is possible after 5-10 years of the PIM/IMT program, since the more value achieved the all government resources should be included, however this may not work in all cases during the initial years, the government may maintain the source, coordinate and make increase them, but this reason is important to use at the end during a period of at least 5 to 10 years to have a more proper evaluation. The costing system may be modified according to local experience.	
When the project starts, the first budget will be the first resource's allocation, being in the case of the PIM/IMT program, lower priority related to the impact of an equipment and human should be considered.	
Water is a vital to verify the continuity of funds for rehabilitation works in the water sector, it is very important to verify that the budget allocated to activities within resources is not cut off indicators as an input, since that must be offered in some countries the PIM/IMT process could be slow, and the budget could be cut, continued at least 2 years, it is therefore important to reach the maximum of the efficiency of the program through.	The need for it could have a growing trend at the beginning and after five years (7-10), the trend should be decreasing, to not know this area monitored every year, we can also include the cost part of the rehabilitation and repair the items.