Horizon 2020

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Lessons learnt of operational pollution reduction projects – *MeHSIP-PPIF's Validation Exercise*

A TA operation funded by the
European Union - FEMIP Support Fund

Mediterranean Hot Spot Investment Programme - Project Preparation and Implementation Facility

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GOVERNANCE & FINANCING FOR THE MEDITERRANEAN WATER SECTOR –

1st Regional Conference

Vasilios Nikitas

Overview Of Presentation

Section A:

MeHSIP-PPIF – *a snapshot*

Section B:

Validation Exercise – *key results and lessons learned*

Section C:

H2020 Pipeline – *investment needs*

Section D:

Impact & Value Added

Section A

MeHSIP-PPIF

A snapshot

MeHSIP-PPIF – a snapshot

Phase I
(Mar – Dec 2009)

- Focus on project identification activities
- Establishing H2020 Project List & H2020 Pipeline
- Confirming Wave 1 and Wave 2 of MeHSIP-PPIF Pipeline

Phase II
(Feb 2010 – Mar 2013)

- Advanced project preparation activities (e.g. feasibility studies, pre-feasibility studies)
- Cross-cutting activities

Extension
(Apr 2013 – Mar 2014)

- Post-FS activities on 4 priority projects (e.g. financing options)
- ***Validation exercise***
- Project identification & preparation activities
- Maintain cross-cutting activities (e.g. H2020 Project List)

Section B

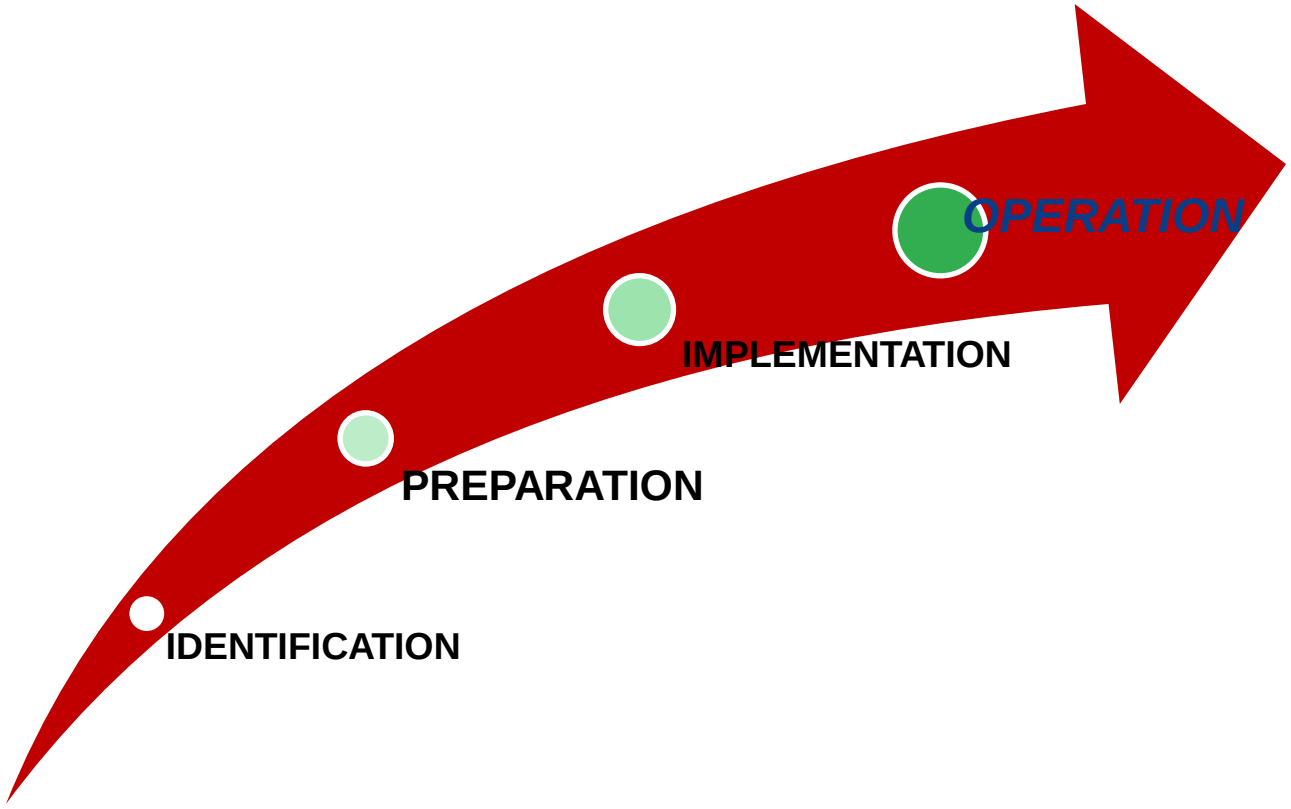
Validation Exercise

Key results and lessons learned

Setting the Stage

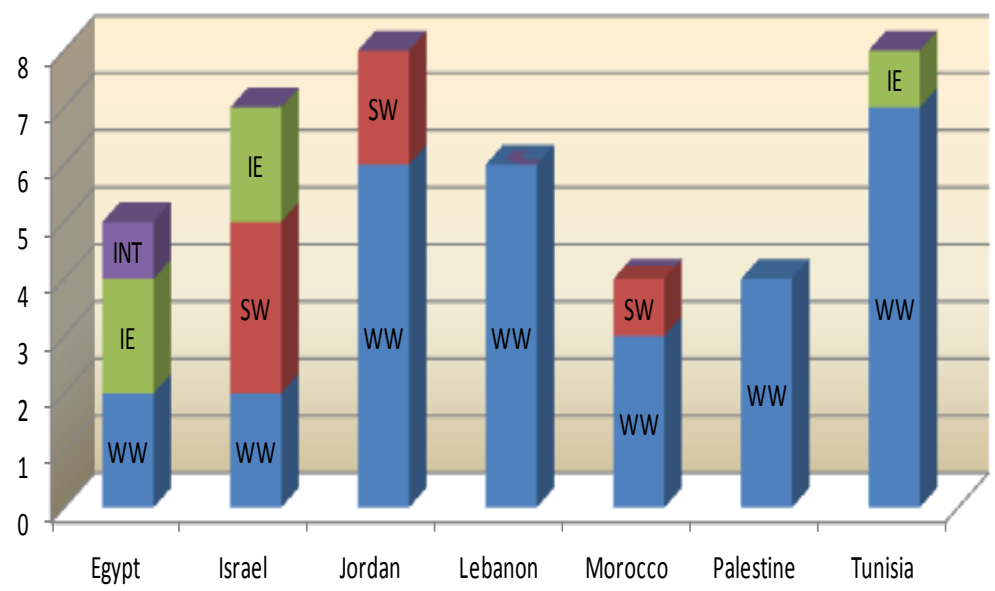
- ***Objectives*:**
  1. Provide a “snapshot” of status of implementation
  2. Analyse and extract lessons of pollution reduction investments
  3. Establishing a base for future monitoring
- ***Means:***
  1. Partnership (e.g. UfM, SWIM, UNEP)
  2. Verification tools and Country Visits
  3. Cooperation with Gov Counterparts
  4. Cooperation with Donors and IFIs
  5. Field verification of sample projects

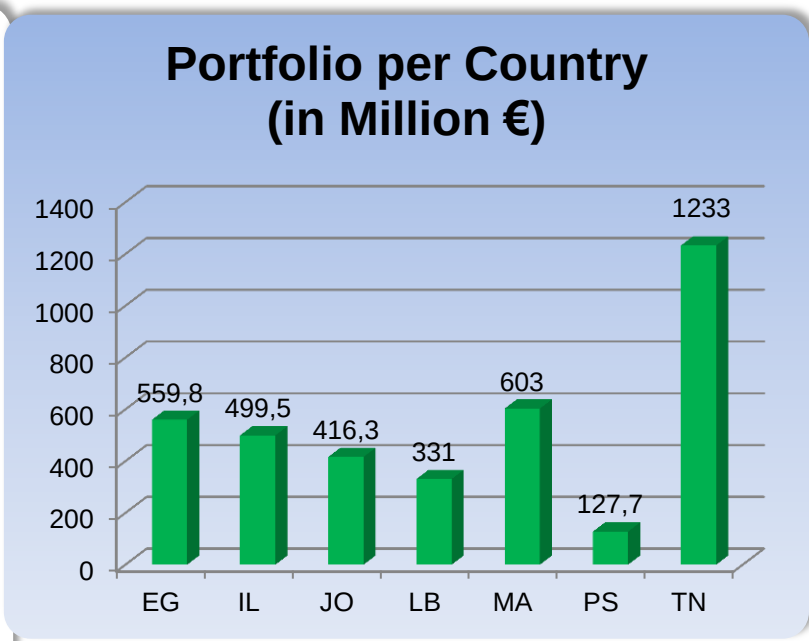
The Project Cycle



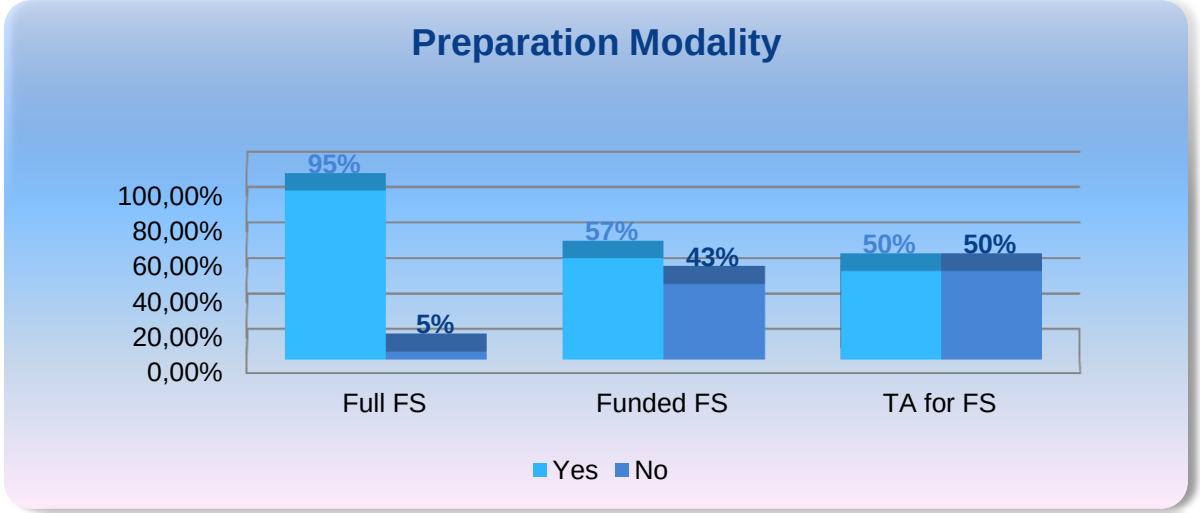
Project Sample

1. **Validation of projects with ‘Secured Financing’**
2. **Total of 47 at start → 42 retained during validation**
3. **Projects spread across 7 Countries**
4. **Projects Spread among H2020 target Sectors (WW, SW and IE)**

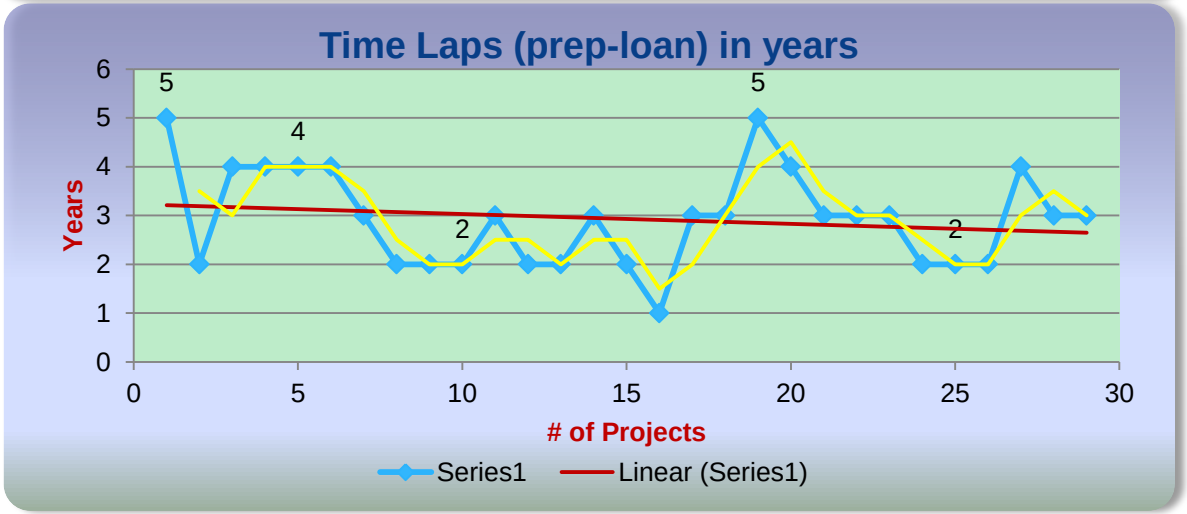




Preparation Phase

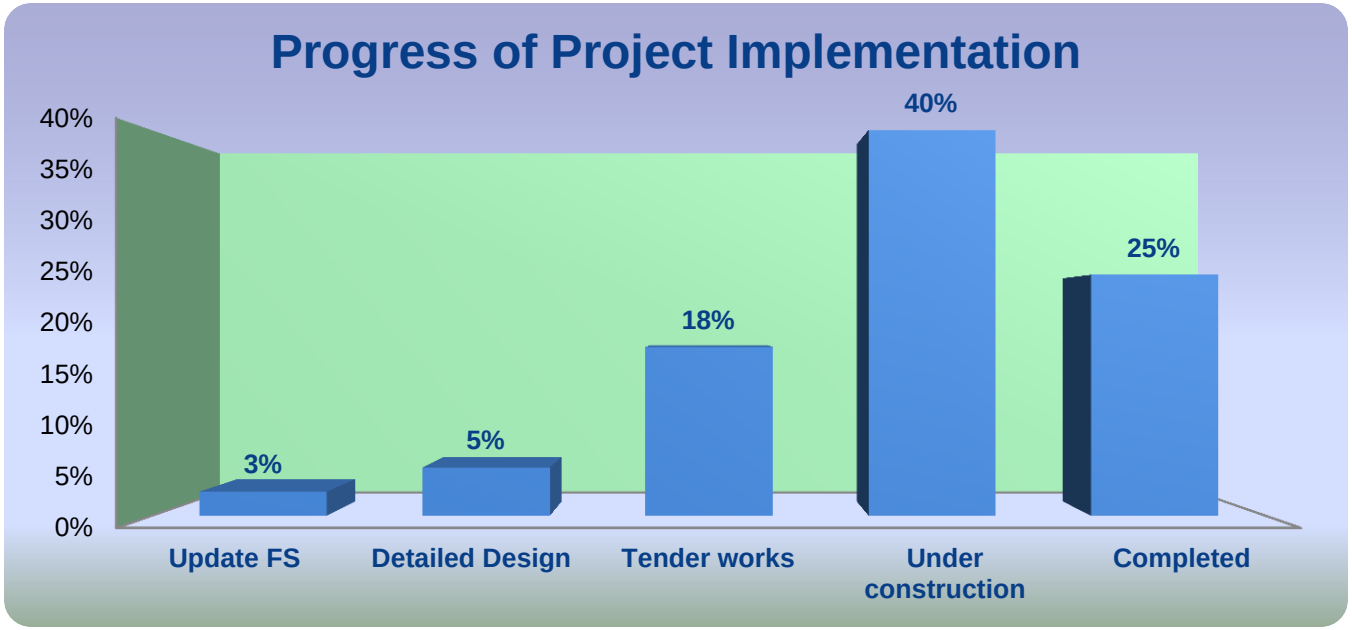


- ✓ All 42 projects verified
- ✓ Most projects did FS
- ✓ FS funding equally shared
- ✓ 50% of FS prepared without TA



- ✓ Verification records → **challenging to find**
- ✓ Only 29 Projects were verifiable → **72% of projects**
- ✓ Average time needed to finalise project preparation phase → **3 years**

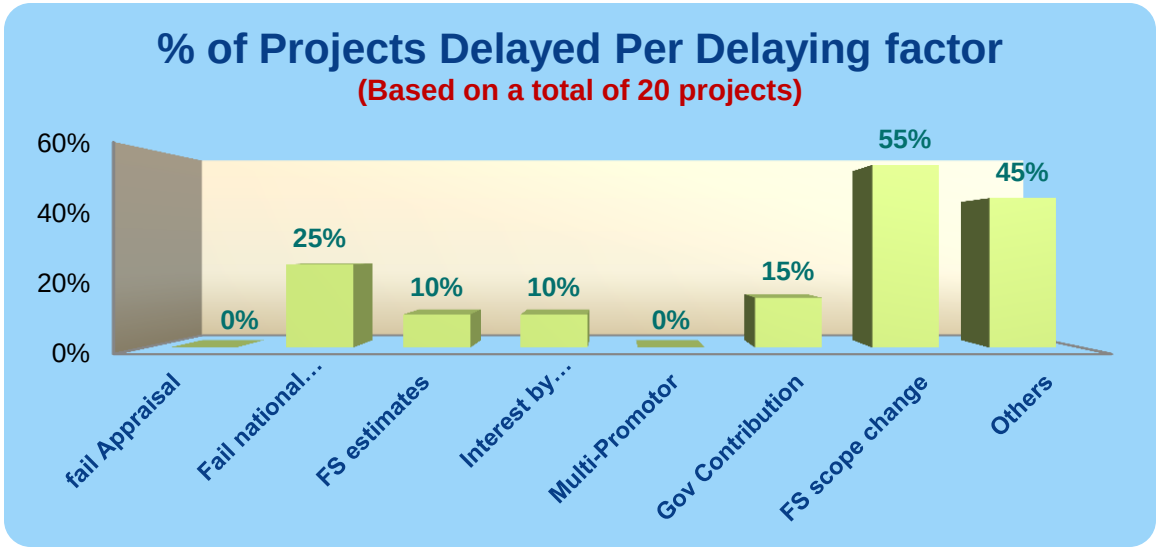
Implementation Phase



Stages of Projects in the Implementation Phase

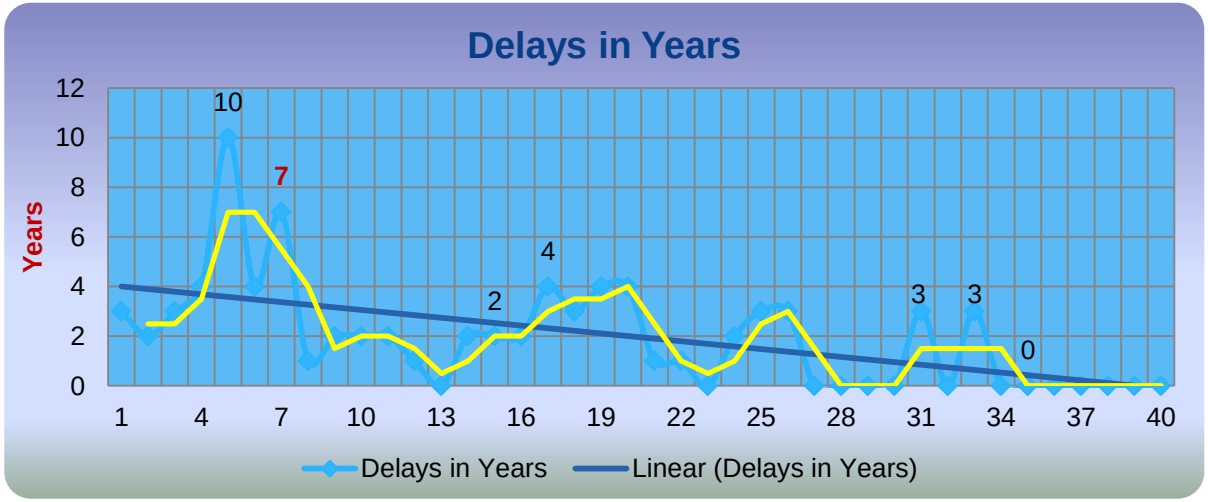
1. 40 projects out of 42 moved to implementation
2. Updating FS Occurred in only one case
3. Positive Indication that nearly 75% of the projects are *in* final stages
   a. 16 projects under construction Valued at 1.6 Billion Euro
   b. 10 Projects reported as completed Valued at ~419 M Euro
4. Measuring completion is challenging in umbrella projects

Delays Observed

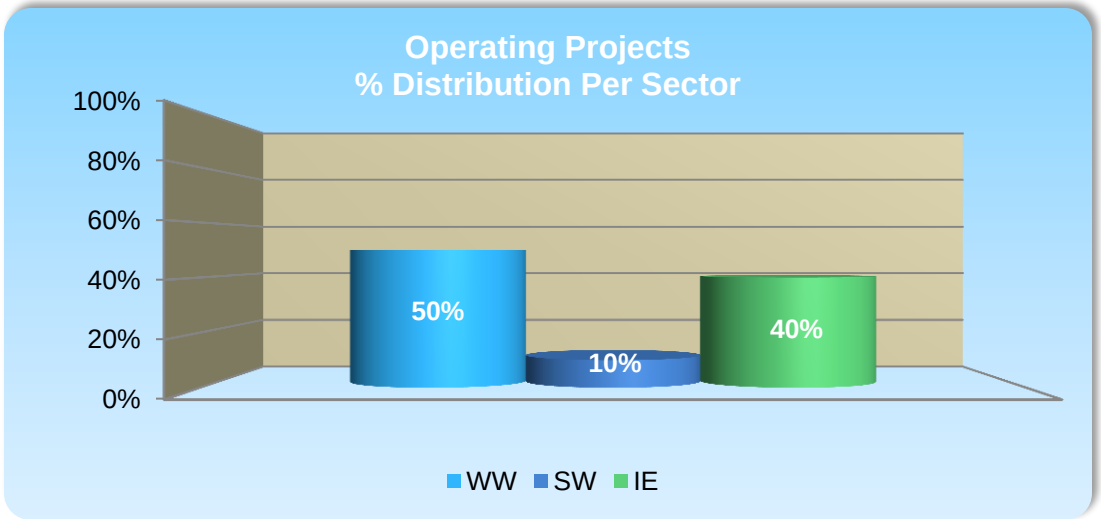


1. 20 (out of 40) projects subject to delay
2. 50% of projects are delayed from 2 to 4 Years
3. **Average delay time 3 years**

- X FS Scope Change
- X Fail Nat'l Approval
- X Inappropriate Cost estimates
- X Gov Contribution

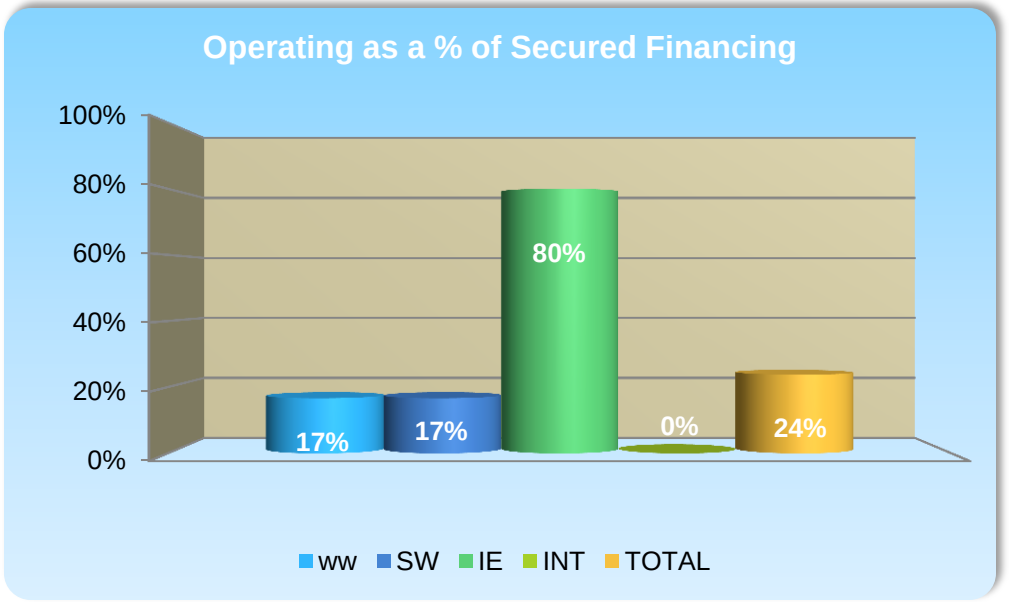


Operation Phase

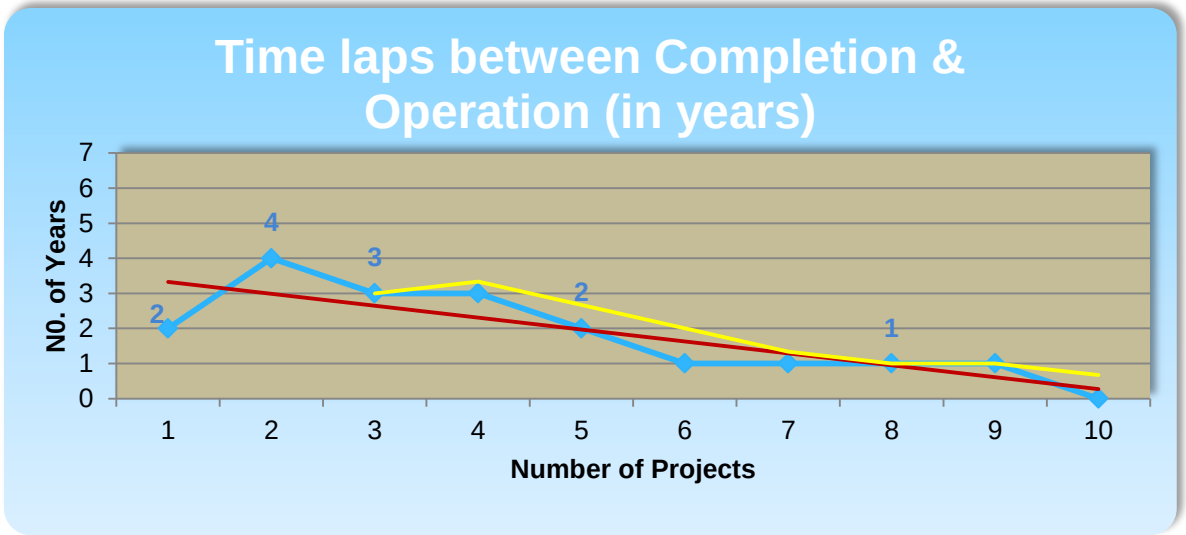


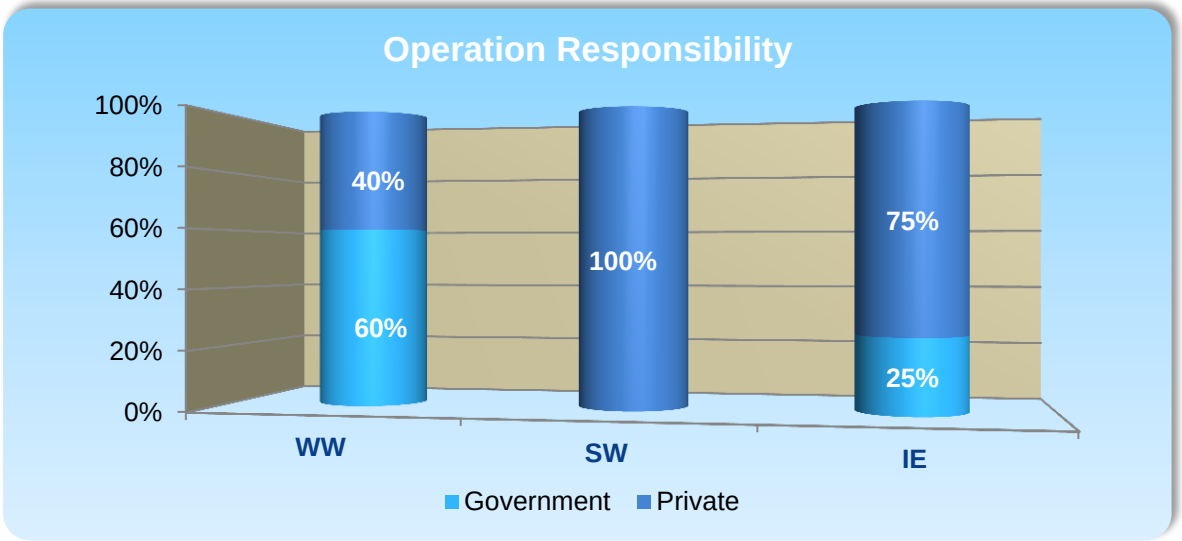
TOTAL Operating	WW	SW	IE
10	5	1	4
In %	50%	10%	40%
In Value	25%	10%	65%
418.7 M €			

SECTOR	WW	SW	IE	INT	TOTAL
Operating	5	1	4	0	10
Secured Fin.	30	6	5	1	42
% Distribution	17%	17%	80%	0%	24%
% of total Portfolio					11%



Operation Phase





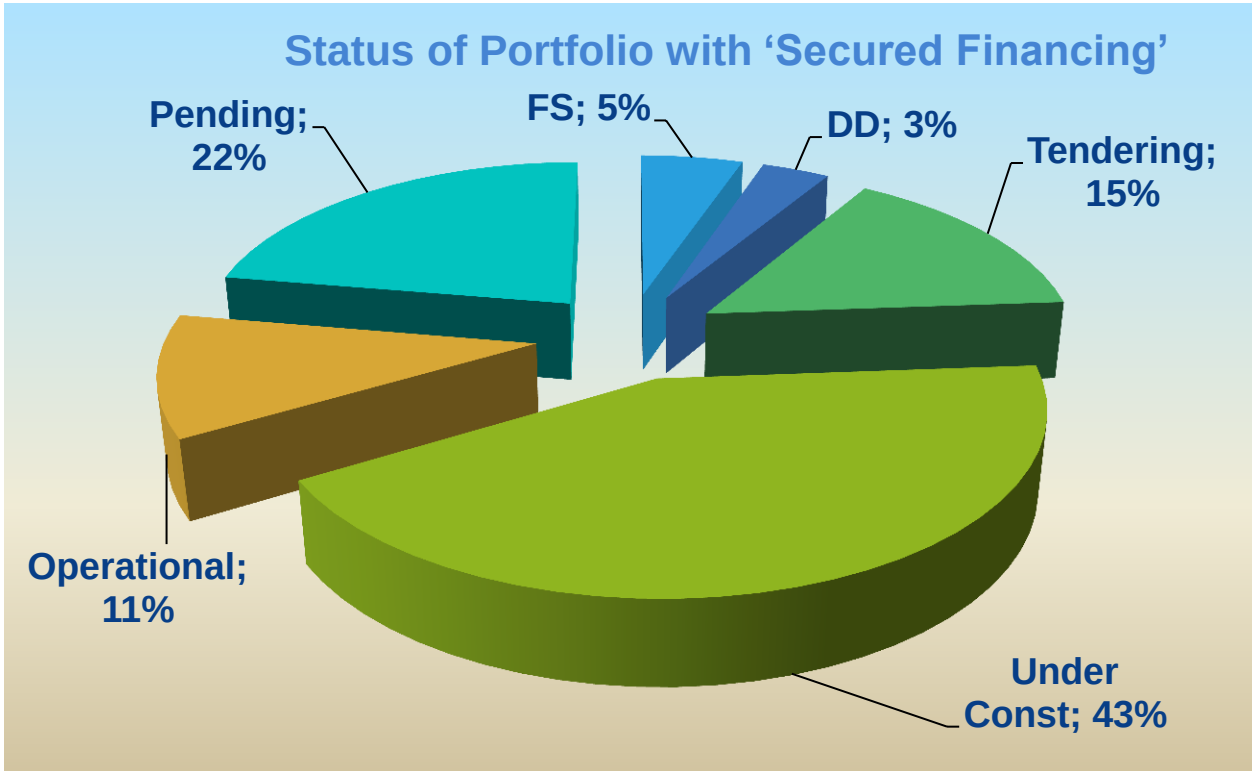
- ✓ Average time needed to enter in operation is **2 years from date of completion**

Gov's still heavily involved in the WW sector as it evolves due to:

- ✓ Weak/low tariff structures
- ✓ Inefficient billing and collection procedures
- ✓ Lower than expected revenue streams
- ✓ Social and political sensitivity

A market with lots of potential for the private sector

Overall Picture



	FS	DD	Tendering	Under Const	Operational	Pending	Total
In M Euro	198	131	570.8	1,609.5	418.7	842.3	**3,770.3**
in %	5%	3%	15%	***43%***	***11%***	22%	**100%**

Field Visits (MeHSIP-PPIF & SWIM)

MeHSIP-PPIF joined hands with the EU-funded SWIM project to undertake technical field verification missions to a selected number of H2020 projects that are operational.

1. LB007 (Lebanon): Wastewater treatment and network in Saida. Onsite visit carried out to - **Saida WWTP**
   - ✓ Plant design problems: screening originally provided → located after intake pumps
   - ✓ Constructed without a long term strategy for upgrading the pollution removal achieved → very limited foot print
   - ✓ Only a single seawater analysis at the local beaches area → difficult to assess that the long sea outfall provides a significant beach pollution reduction impact
2. MA003 (Morocco): Construction of 7 WWTPs in the municipalities and extension of primary and secondary collectors. ***Al Hoceima WWTP***
   - ✓ Overall - plant has been constructed to a good standard
   - ✓ Sludge treatment is currently not fully compliant (dryness less than 22%)
3. TN007 (Tunisia): Programme WWTP / coverage of a total of 19 WWTP and pumping stations. *Onsite visit carried out to* - ***Complex Choutrana WWTP***
   - ✓ Plant reducing pollution load entering the plant satisfactorily
   - ✓ Levels of faecal coliforms are not measured
   - ✓ No facility within the plant for reduction of Nitrogen or Phosphates
   - ✓ Indications that plant already operating at close to design capacity 5 years after commissioning → incoming flows / loads exceeding design capacity levels

Key Observations & Lessons Learnt

Observations:

- ✓ Normal time span to bring an infrastructure project from an idea to completion requires between **7 to 10 years**
- ✓ An **extended time lapse** between end of preparation phase and start of implementation phase affects negatively project planning
- ✓ Despite obvious engagement of partner country Governments **resources available for environmental protection remain modest** and in continuous need of supplements

Lessons learnt:

- ✓ An inclusive and continuous consultation process with key stakeholders is vital to ensure a smooth and effective preparation phase
- ✓ Of equal importance - consultation modalities/forum should continue also during the implementation phase
- ✓ Open and transparent process → not only supports ownership by stakeholders and national counterparts - also establishes a credible initiative towards real pollution abatement
- ✓ Proper engineering studies and investigations at the preparation phase → key to successful and smooth project implementation
- ✓ Relying on local/national resources and expertise are essential in order to optimise the preparation process
- ✓ Committing financing before proper project preparation → can negatively affect overall project implementation planning/execution

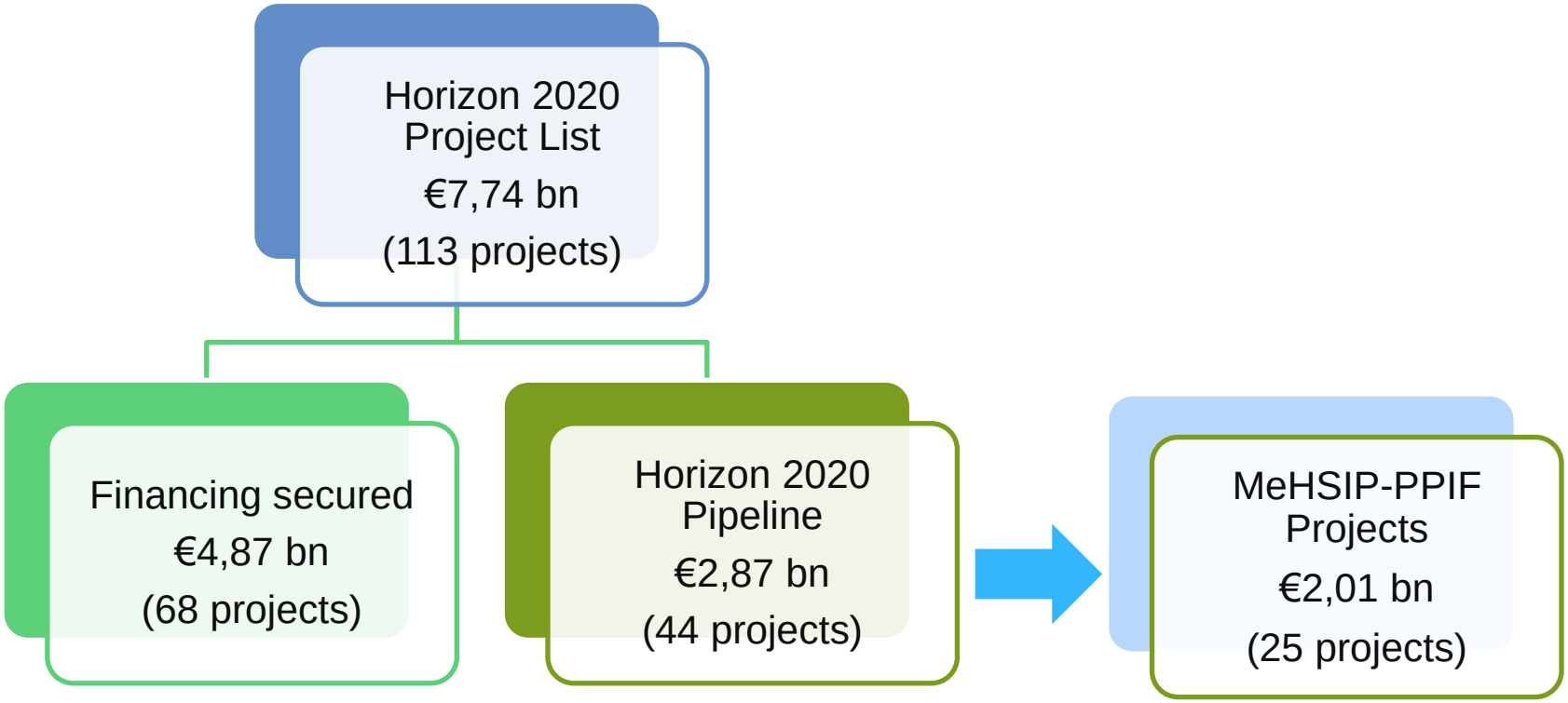
Section C

Investment Portfolio

Horizon2020 Project List & Horizon2020 Pipeline

H2020 Project List: 113 projects (planned, ongoing or completed) mostly originating from NAP

H2020 Pipeline: 44 projects (€2,87bn) yet to secure funding/financing



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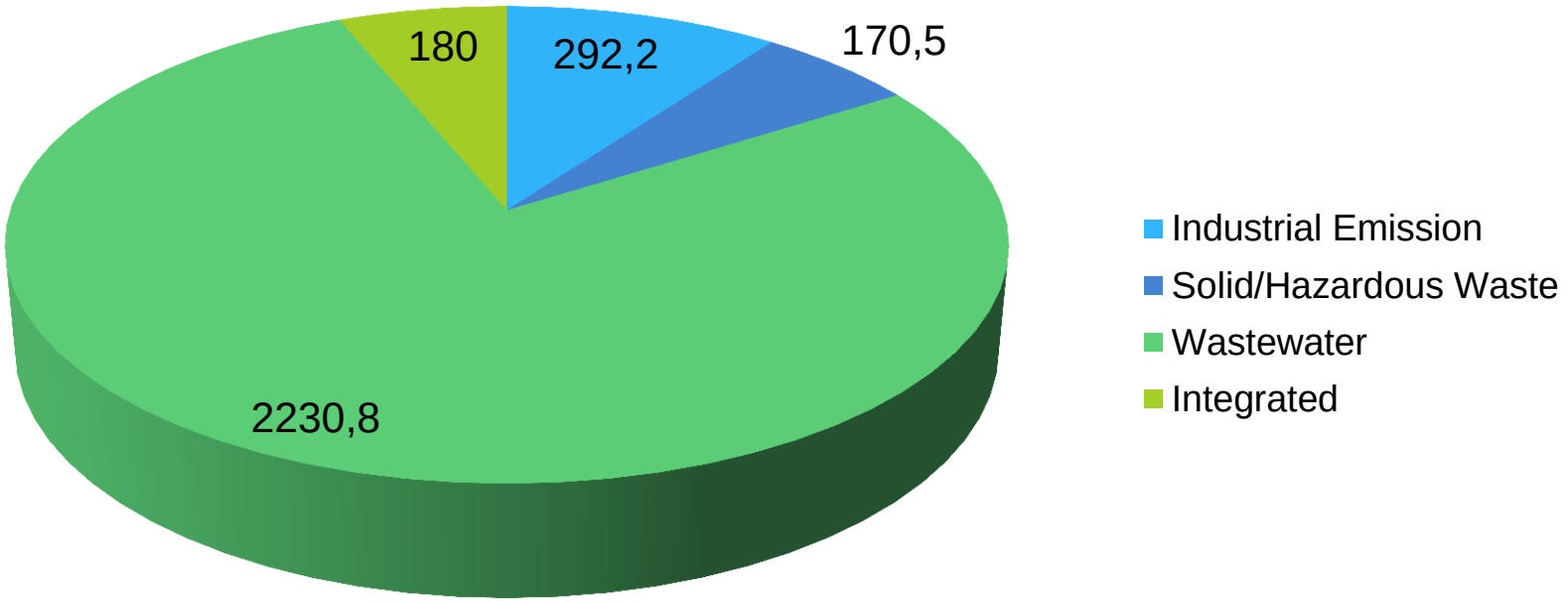
H2020 Pipeline (not secured funding): current investment needs (m EUR)



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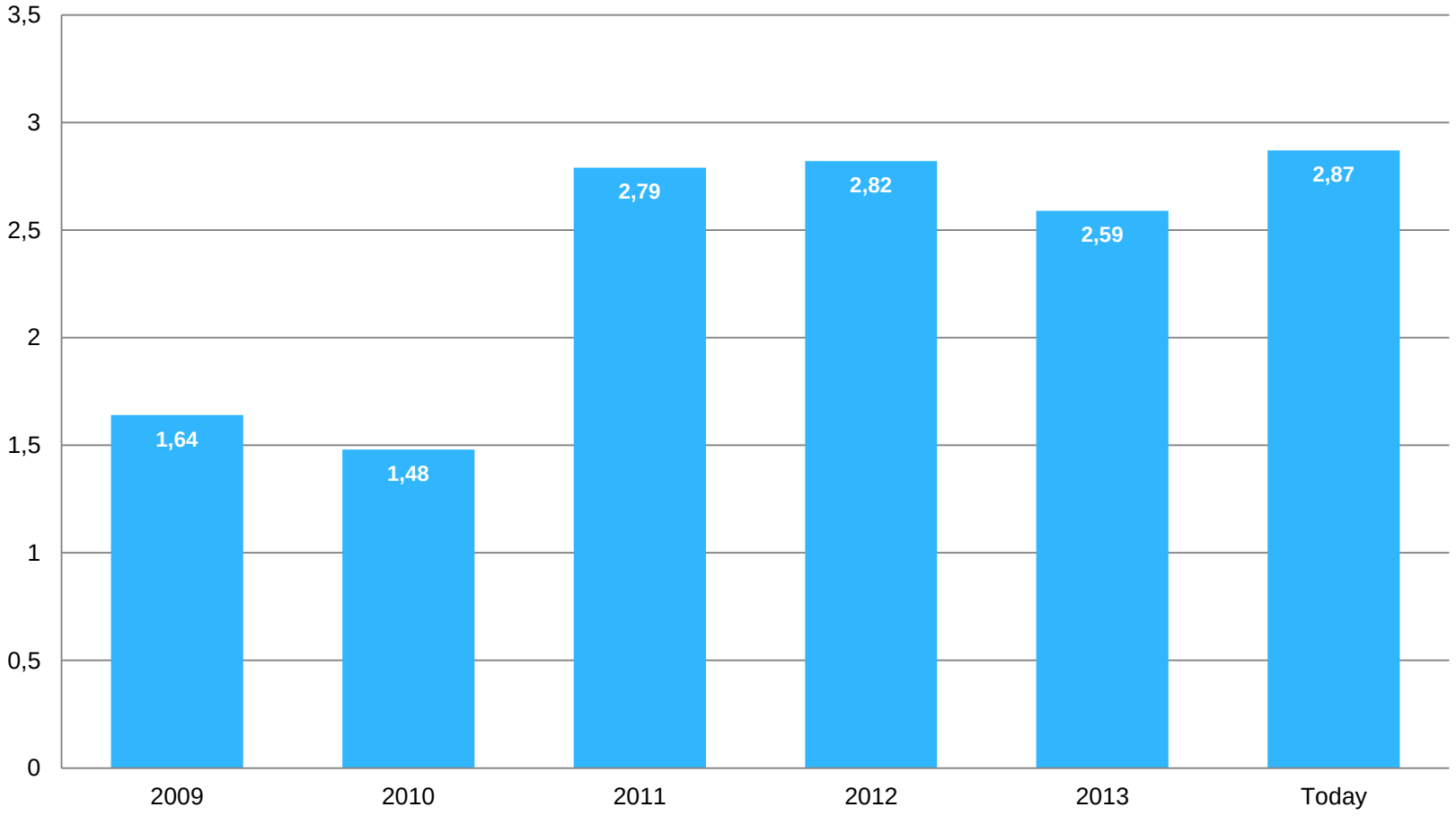
Evolution of Horizon 2020 Pipeline - investment needs (in billion EUR)



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Project specific activities

- Feasibility Studies
- Other Project Preparation and Validation Activities

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Outcomes – Priority Investment Projects

Al Ekaider (Jordan)

Integrated SWM Project

- Investment value: 39m EUR
- Promoter: Joint Services Council (Irbid)
- Status: pending Government approval
- NIF: provisional approval

Kafr El Sheikh (Egypt)

Wastewater Expansion for Kafr El Sheikh Governorate

- Investment value: 163.5m EUR
- Promoter: HCWW
- Appraisal mission by EIB & EBRD completed
- Status: loan negotiation with EIB and EBRD ongoing
- NIF: provisional approval

Al Ghadir (Lebanon)

Extension of WWTP

- Investment value: 100-150m EUR
- Promoter: CDR
- Status: appraisal mission planned for 2014
- NIF: draft application completed

Lake Bizerte (Tunisia)

Integrated De-pollution Programme - Lake Bizerte

- Investment value: 70m EUR
- Promoter: MoE
- Appraisal mission by EIB & EBRD completed
- Status: loan negotiation with EIB and EBRD ongoing
- NIF: provisional approval

Section D

Impact & Value Added

Impact & Valued Added of MeHSIP-PPIF

- Project preparation efficiency:
  - Four pollution reduction projects with a total investment of c. 400 million Euros are ready for financing and implementation
  - Two projects have received approval from EIB Board of Directors
  - NIF grants allocated to three projects
- Complementing IFI resources:
  - Provision of dedicated and continuous support on preparing pollution reduction projects - not always available within IFIs
- Flexibility in designing sustainable projects (adjust/extend SoW):
  - Design integrated projects → move towards a programme-based approach
- Independence of team enabling access to key players:
  - Institutional arrangements openly discussed (based on lessons learned) with decision makers
  - Proposed institutional arrangements ensures project sustainability

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Thank you for your attention.

A TA operation funded by the
European Union - FEMIP Support Fund

Field Visits – Key Findings & Observations

Lebanon - Saida WWTP

- ✓ Preliminary treatment only with a 2km sea water outfall
- ✓ Nominal capacity: 50,000 m³/d
- ✓ 96,600 people connected to plant
- ✓ Constructed in 2005 with an operation and maintenance contract awarded in 2012
- ✓ WWTP is currently being operated under a new three (3) year operations contract → (a) three network pump stations, (b) 35 km of sewage network, (c) WWTP at Saida [operation team: 45 staff]
- ✓ WWTP only accepting 5,000 m^3/d of sewage for the 7 years of operation due to network deficiencies and lack of an effective operating contract
- ✓ Key observations:
  - ✓ Plant design problems: screening originally provided → located after intake pumps
  - ✓ Constructed without a long term strategy for upgrading the pollution removal achieved → very limited foot print
  - ✓ Only a single seawater analysis at the local beaches area → difficult to assess that the long sea outfall provides a significant beach pollution reduction impact

Field Visits – Key Findings & Observations

Morocco - Al Hoceima WWTP

- ✓ Population connected to the network in 2012 is 57,000 inhabitants
- ✓ Capacity of the WWTP: 9600 m³/d
- ✓ Taken over by ONEE since 2004 - currently operated by ONEE
- ✓ Treatment process is activated sludge
- ✓ Sewer network of c. 93 km; 7 pumping stations and 6 stormwater spillways
- ✓ Treatment in 3 steps: (i) pre-treatment, (ii) secondary treatment using activated sludge process, (iii) tertiary treatment using membranes and UV disinfection
- ✓ Key observations:
  - ✓ Overall - plant has been constructed to a good standard
  - ✓ Sludge treatment is currently not fully compliant (dryness less than 22%)
  - ✓ Clearly a good example of pollution reduction achieved by the plant → demonstrated by significant reduction in BOD / COD loads since construction of the rehabilitated and new extensions to the plant that were completed in 2011

Field Visits – Key Findings & Observations

Tunisia - Complex Choutrana 2 WWTP

- ✓ Treatment is extended aeration with sludge press and dewatering with no odour control
- ✓ Nominal capacity: 40,000 m³/d
- ✓ PE 333,000
- ✓ Operation started in 2007
- ✓ Operated by ONAS
- ✓ 7 WWTP serving Grand Tunis → 2 located in the Choutrana complex (North of Tunis) [Choutrana 1 commissioned in 1986 and then extended and rehabilitated in 1998 / Choutrana 2 commissioned in 2007]
- ✓ 2 WWTPs based on the principle of a biological process of treatment using activated sludge.
- ✓ Choutrana 2 WWTP - treatment steps: (a) pre-treatment ; (b) secondary treatment (TS) and sludge handling (no provision for tertiary treatment)
- ✓ Key observations:
  - ✓ Plant reducing pollution load entering the plant satisfactorily
  - ✓ Levels of faecal coliforms are not measured
  - ✓ No facility within the plant for reduction of Nitrogen or Phosphates
  - ✓ Indications that plant already operating at close to design capacity 5 years after commissioning → incoming flows / loads exceeding design capacity levels
  - ✓ Sludge treatment and handling undertaken efficiently → sludge dewatered and dried and transported off-site to an appropriate solid waste site (owned by ONAS)

Overview of MeHSIP-PPIF priority projects (1/3)

Country	Sector	Project	Investment cost (EUR)	MeHSIP-PPIF intervention
Egypt	WW	Integrated Water and Wastewater Project - Marsa Matruh	87,0	Pre-feasibility study completed
Egypt	WW	Wastewater Expansion for Kafr El Sheikh Governorate	163,5	Feasibility study completed
Egypt	HW	Hazardous Waste Management Project (extension) - Alexandria (Nasreya)	25,0	Pre-feasibility study completed
Israel	SW	Landfill mining and reclamation project - Netanya	35,0	Project Fact Sheet
Jordan	SW	Integrated SWM Project - Al Ekaider	39,0	Feasibility study completed
Jordan	WW	Box culvert (40km) for wastewater conveyance - Zarqa/Amman	61,0	Project Fact Sheet
Jordan	WW	Wastewater Treatment Plant to Serve the East coast of Dead Sea (construction of WWTP (12000 m^3/day), pump stations, transmission pipelines)	18,0	Project Fact Sheet
Jordan	SW	Rehabilitation of a dump site and wastewater collection tank - Rossaifa	22,0	Project Fact Sheet
Jordan	HW	Medical and Industrial Waste Treatment Plant for Greater Amman and Middle Governorates (BOT project)	28,5	Project Fact Sheet
Lebanon	WW	Extension of WWTP - Al-Ghadir	100-150	Feasibility study completed

Overview of MeHSIP-PPIF priority projects (2/3)

Country	Sector	Project	Investment cost (EUR)	MeHSIP-PPIF intervention
Lebanon	WW	Water and Wastewater Project - Kesrwan	198,0	TORs for TA for procurement and supervision
Lebanon	WW	Wastewater Treatment and network in Greater Beirut Wastewater System - Dora-Bourj Hammoud	155,0	TORs for TA for procurement and supervision
Lebanon	WW	Wastewater Treatment and network in Saida	30,0	On-site validation visit
Morocco	SW	Integrated Solid Waste Management Project - Tangier	30,0	Project Fact Sheet
Morocco	WW	Construction of 7 WWTPs in the municipalities and extension of primary and secondary collectors	40,0	• On-site validation visit • Prioritisation/streamlining of pending components
Morocco	SW	Solid Waste progress & Intervention plan – National [NEW]	Tbc	Status report on SW sector
Syria	WW	Syria Horizon 2020 Water Project -Banias and surrounding villages	110,0	Fact Finding Mission and Economic/Financial analysis
Syria	SW	Integrated Solid Waste Management Solutions and Wastewater Systems for the Coastal Cities - Latakia and Tartous	tbc	Fact Finding Mission and Concept Note
Tunisia	INT	Integrated De-pollution Programme - Lake Bizerte	70,0	Feasibility study completed

Overview of MeHSIP-PPIF priority projects (3/3)

Country	Sector	Project	Investment cost (EUR)	MeHSIP-PPIF intervention
Tunisia	IE	Integrated intervention program for the de-pollution of the bay and river basin - Monastir Bay	41,0	Project Fact Sheet
Tunisia	IE	Rehabilitation of the phosphorgypsum dump site of Gabes	200,0	Project Fact Sheet
Tunisia	WW	Rehabilitation programme and extension of WWTP, pumping stations and networks on coastal cities and river basins discharging into the Mediterranean Sea	175,0	Project Fact Sheet
Tunisia	IE	Rehabilitation of the Coastal Zone of Thyna	45,0	Project Fact Sheet
Tunisia	WW	DEPOLLUMED - Rehabilitation programme and extension of WWTP	175,0	Detailed ToRs for TA to develop FS
Tunisia	WW	Programme WWTP (complementary to programme WWTP financed by KfW: 36.5m) / coverage of a total of 19 WWTP and pumping stations	127,0	On-site validation visit