




International training needs in water sector and their evolutions

INBO Webinar about training
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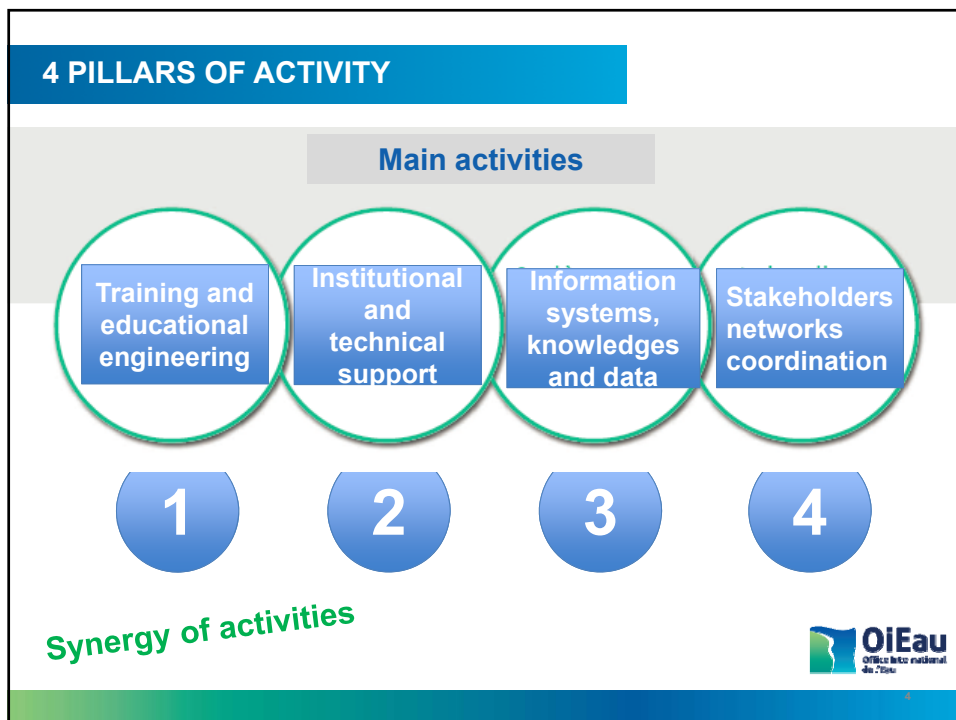
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YEARS
WORKING IN THE
PUBLIC INTEREST

Introduction

OiEau training activities

Developing skills for better water management

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Training and Educational Engineering Department

Products

Initial and vocational professional training


- Catalog and tailor-made training sessions
- About all water and solid wastes professions



Educational engineering

Technical and organizational support

Financial turnover = 6,5 M€
 OWater financial turnover = 14 – 16 M€



Training and Educational Engineering

Capacities

50 full time employees

- Including 35 full time trainers

43 000 m² of pedagogical facilities

- 20 training classrooms
- 25 pedagogical plate-forms

En 2019

- 300 different training
- 600 training sessions
- 6 000 trainees

Internal trainers

Training in real conditions of works

Training centre, unique in Europe



Training and Educational Engineering

Educational methods

PRÉSENTIEL

DISTANCIÉL

Face to face, distance and digital


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International training needs in water sector and their evolutions


AFD study

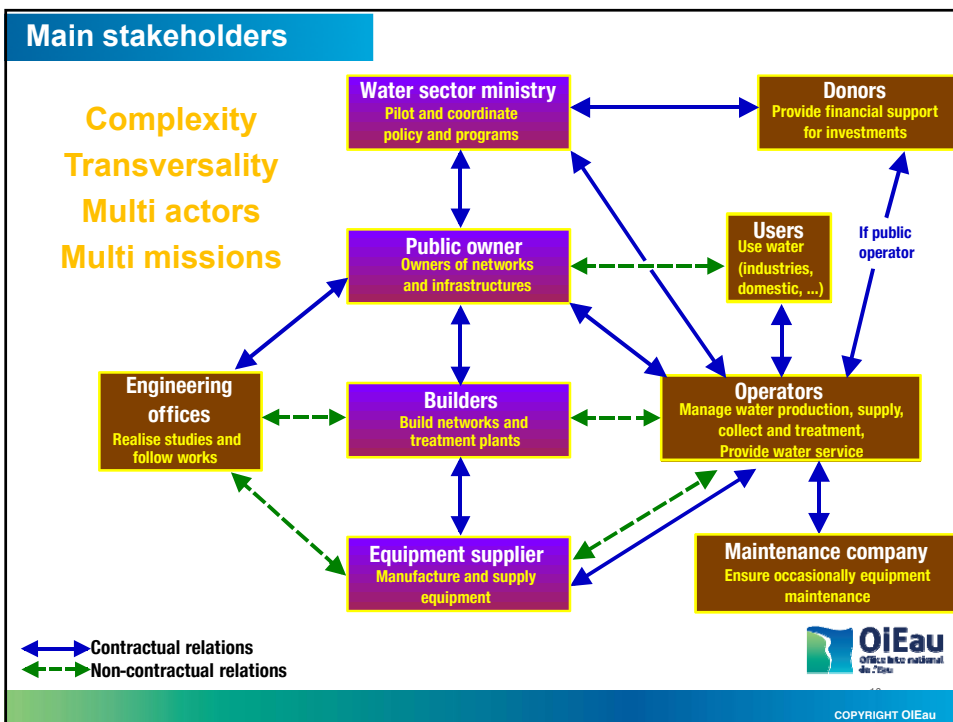
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Vocational training in water and liquid sanitation sector



- **Context :**
 - AFD's wishes to consolidate "capacity building" component of its interventions
- **Study objects :**
 - Identifying vocational training needs of the "drinking water and wastewater" sector in AFD's countries of intervention
 - Getting a "toolbox" for pre-identification of vocational training project funding
- **Project owner : AFD**
- **Realisation : OiEau**
- **Study perimeter :**
 - Initial et continuous vocational training
 - Small water cycle
 - Country of AFD's intervention
- **Period : 2017 - 2018**





Great challenges	
Resource	Protecting the resource. Climate change. Urban and demographic growth
Drinking water production (and industrial waters) and network	Access to water service : Increasing demand for water from populations / high population pressure, urban densification, isolated rural area
Sanitation network + non collective	Access to waste water service. Collecting, evacuating wastewaters to protect people against health risks
Rainy water network	Floods risks management. Collecting, evacuating rainwater in order to control the risk of floods reinforced by climatic hazards
Waste water treatment plant	Treating wastewaters to protect populations against health risks and to sustain the use of water resource and the biodiversity
Transversal	Sustainability of infrastructures. Energy consumption. Regulatory changes
Water service management	Organizing services for efficient operation to ensure their sustainability and performance of investments
Economical	Economic balance of water services. Local economic activities
Social and sanitary	Water at the centre of social and health issues. Water access of people to drinking water and sanitation. Water diseases. Water and urbanism interactions and population growth. Health and safety risks for staff. Relations with users.

Training needs are linked to these historic challenges with challenges increase related to climate change and health



Challenges for HR



- **Mapping and trades descriptions:**
 - Water and sanitation service
 - Design offices
 - Works companies
 - Maintenance companies
 - Regulatory organisations



Multi jobs
Specific to water
Common to other sectors
Needs for job and skills descriptions



The diagram is a circular chart with 'WATER AND WASTE WATER SERVICE' at the center. It is divided into four main quadrants:

- SUPPORT (Top):** Top Management (General director, Operation director, Commercial director, Studies director), Finance / Accounting (Finance and accounting director, Finance and accounting controller, Accounting), Human resources (Dir. of human resources, In charge of staff administration, In charge of human resources), Information technology (IT manager, IT engineer, IT technician), General and logistic services (Dir. of general and logistic services, Stakoupaq, Service agent), Legal (Lawyer, contracts...), Administration & Secretariat (Administrative director, Administrative agent, Secretary / Assistant), Communication (Dir. of communication, In charge of communication), Purchases (Purchases director, Purchases).
- USERS / COMMERCIAL (Left):** Commercial / Marketing (Sales manager, Business manager, In charge of technical sales), Meter reading / Customer (Meter reading manager, Meter reader), Users relation (Customer manager, Resource adviser, In charge of users relations), Intervention.
- OPERATION / TECHNIQUE (Bottom-Left):** Quality / Analyses (Laboratory manager, In charge of analysis), Drinking water treatment plant (Plant manager, Treatment engineer, Treatment technician, Treatment agent), Waste water treatment plant (Plant manager, Treatment engineer, Treatment technician, Treatment agent), Central / Maintenance (Maintenance manager, Maintenance technician, In charge of scheduling), Drinking water supply network (Network manager, Network engineer, Network technician, Network agent, Network maintenance agent, Work controller, Head of construction site), Waste water network (Network manager, Network engineer, Network technician, Network agent, Network maintenance agent, Work controller, Head of construction site).
- QUALITY / HEALTH AND SAFETY (Bottom-Right):** Quality, health and safety, environment (OSE manager, In charge of OSE).

Challenges for HR		
Social and societal	<p>Deploying and valuing HR in disadvantaged segments</p> <p>Developing a local technical and economic fabric</p> <p>Synergy education / employers / social partners</p>	
Technical and organizational	<p>Sustainable development of services, companies and infrastructures</p> <p>Supporting possible decentralization and reorganisation processes</p>	
Human Resource Management	<p>Meet the needs of employees in the water sector :</p> <ul style="list-style-type: none"> - Financial resources - Employability - Forecast management of jobs and skills - Retirements - Hierarchical divisions - Functional mobility - Definition of trades and skills required <p>To preserve and value the personnel of the sector :</p> <ul style="list-style-type: none"> - Synergy between skills evolution and career progression - Remuneration and incentives - Departures of high-capacity staff to private, industrial sectors 	
<p>Training needs are also linked to these HR issues</p>		

HR quantitative needs																		
<ul style="list-style-type: none"> • Strong shortages in all organizations of the sector • For example, for water services ensuring operation : 500 to 700 employees / million served population • Hierarchical distribution of staff in water services : 																		
	<table border="1"> <thead> <tr> <th></th> <th>Managerial staff</th> <th>Technicians</th> <th>Workers</th> </tr> </thead> <tbody> <tr> <td>Developing countries</td> <td style="text-align: center;">3 - 5 %</td> <td style="text-align: center;">10 - 15 %</td> <td style="text-align: center;">80 - 89 %</td> </tr> <tr> <td>Emerging country</td> <td style="text-align: center;">4 – 10 %</td> <td style="text-align: center;">15- 25 %</td> <td style="text-align: center;">60-65 %</td> </tr> <tr> <td>Developed countries</td> <td style="text-align: center;">5 - 15 %</td> <td style="text-align: center;">25 - 30 %</td> <td style="text-align: center;">55 - 70 %</td> </tr> </tbody> </table>		Managerial staff	Technicians	Workers	Developing countries	3 - 5 %	10 - 15 %	80 - 89 %	Emerging country	4 – 10 %	15- 25 %	60-65 %	Developed countries	5 - 15 %	25 - 30 %	55 - 70 %	
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Jobs in short supply		
Recruitment needs for all actors and trades, but more important :		
Consulting engineering companies	<u>Head of projects : hydraulic, roads, networks, treatment process</u> Engineers : schedulers, works <u>Draftsmen, in charge of projects</u> <u>Technicians in charge of works following</u> <u>Technicians : sampling and measurement</u>	
Water services ensuring operation	Operation / technic Quality / analysis : laboratory managers and technicians <u>Electromechanical maintenance : managers, technicians and specialised workers</u> Treatment plant : managers, engineers, <u>technicians for operation</u> and specialised workers Networks : managers, engineers, <u>technicians and specialised workers</u> Promotions, awareness "sanitation and hygiene » Users / commercial : User relations and management: managers, user advisors, counter readers	
Building companies	<u>Work, scheduling and site supervision</u> <u>Works and team managers</u> Electro-mechanic <u>Pipe laying</u> <u>Builder of sanitation facilities</u> Concrete and civil works Roads Metallic structures and equipment fitters	

What are the training priorities ?	
<ul style="list-style-type: none"> • Initial vocational training <ul style="list-style-type: none"> – Qualitative aspects: table of trades in tension and initial training required (see report) – Often long, leading to a diploma, carried by national players (education) • Continuous vocational training <ul style="list-style-type: none"> – Qualitative aspects: table of priority training topics (see report) – Quantitative aspects: a training of 5 days every 1 or 2 years for 60 to 80 % of professionals in activity – Often short, rarely with skills certification, often carried by water companies (with internal or external service providers) 	

What are the training priorities ?

• Initial vocational training (example)



Level of education	Correspondences	Water and sanitation services	Engineering consulting offices	Building companies	Regulation organisms
Level III	Exit with a diploma of level Bac + 2 years (DUT, BTS, DEUG, schools of health or social training, etc.)	Technicians Sales technician Works inspectors and supervisors Maintenance managers Laboratory technicians and managers Purchasers	Technicians Projects draftsmen Quantity surveyors Sampling and measurement technicians Works supervisors	Technicians Projects draftsmen Quantity surveyors Topographers Sampling and measurement technicians Works supervisors	IT operator

What are the training priorities ?

• Professional vocational training (example)

Topics	Training
Drinking water treatments	- Design and operation of drinking water treatment plants - Classical processes - Advanced processes: desalination, membranes... - Techno-economic optimization and technical management
Drinking water supply	- Design, dimensioning and operation of networks - Choice and maintenance of equipment - Leakage search, network efficiency - Installation of pipelines, construction of networks, control, monitoring of works - Diagnosis and modelling of networks - Counting - Rural supplying networks
Electro-mechanical maintenance	- Organization, realization of the maintenance - Optimization of energy consumption - Production of alternative and renewable energies




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To meet these needs :


invest in vocational training

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Why invest in vocational training? 

Triple profit


Economic	- Make profitable and sustainable investments ...
Health, social and societal	- Employability ...
Technical, organizational and environmental	- Quality of service and PI ...

Vocational training = productive investment 

How to finance training ?


Fundings	Modalities
% of investment costs	<ul style="list-style-type: none"> - % of works - When active donors - To systematize
Administration in charge of the water sector	<ul style="list-style-type: none"> - Water Ministry or Directorate ...
Water service budget	<ul style="list-style-type: none"> - 1 to 3% of payroll
Non sectorial vocational training fund	<ul style="list-style-type: none"> - Taxes collected from companies and redistributed

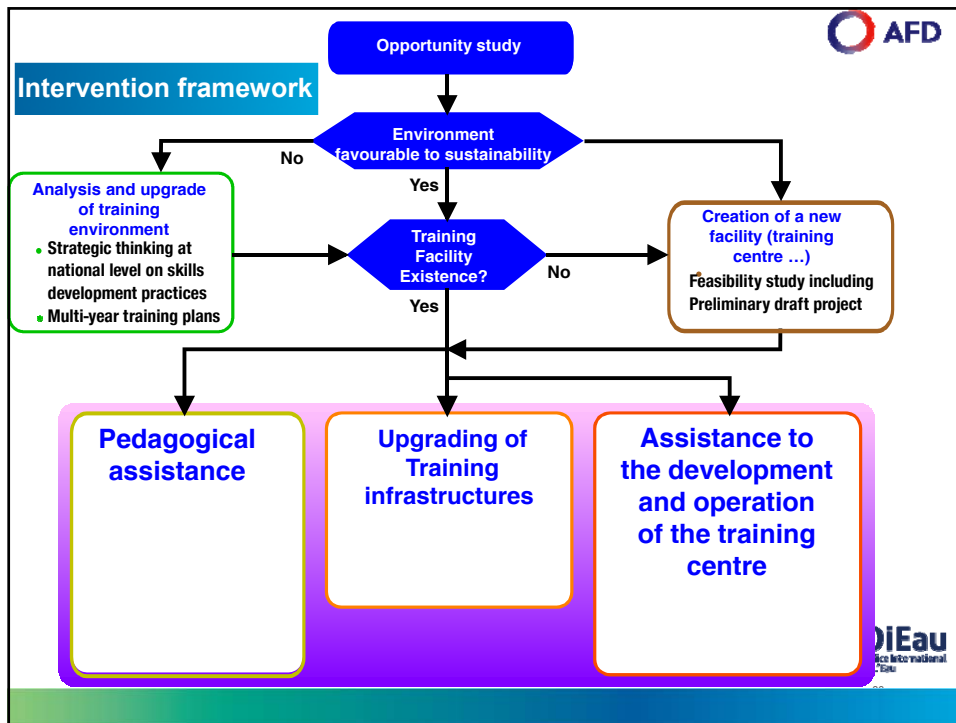
Fundamental for the sustainability of training capacities
 Depending on the context
Importance of legal statutes and governance of training capacities



Opportunity study ?

- **Object :**
 - To analyse the context and training needs before investing in vocational training facility
 - To validate a need for supporting vocational training
 - To define the vocational training facility scenarios to be deployed in the aim to address the different needs and training offerings





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Conclusion

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Conclusion



- **Training needs are impacted :**
 - **by a complex sector** : multi actors, missions, jobs and transversal and diffuse skills
 - By **classical and historical training needs** (water supply, maintenance, technicians, ...)
 - **A sector that has to respond to significant challenges and evolutions** : HR, climate change, water resource, urban growth, health, energy, etc ...
- **High needs for trained staff and skills to meet these challenges**
- **Initial vocational training** (to meet the challenges of recruitment / renewal) **and continuing vocational training** (to upgrade staff) is a possible **response to these needs**.
- **Training is a productive investment**
- However, **training investment must be adapted to the contexts** (opportunity studies), **meet the needs, be graduated and sustainable** (funding, statutes, governance)



Thank you for your attention.

**Being available for answering
to your questions**

