Overall view of the LIFE NanoMONITOR project

nanoMONITOR

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Outline

1. CONCEPT AND OBJECTIVES
2. OVERALL VIEW OF THE WORKPLAN AND EXPECTED OUTCOMES
3. PROGRESS SO FAR AND MAIN RESULTS
4. SUMMARY CONCLUSION

nanoMONITOR

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ENVIRONMENT
LIFE Programme

1. Concept and Objectives

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Overall view of the NanoMONITOR LIFE project

1. Concept and Objectives

❑ Objectives

LIFE NanoMONITOR tackles the challenge of supporting the monitoring of the concentration of ENMs in indoor workplaces and environment upon release, considering that:

- Whilst a **growing number of ENMs** are already available on the market, there is still an on-going debate about their potential effects on human health and the environment.
- The use, production and disposal of ENMs raise concerns about their environmental impact at all stages of the value chain, considering that **nanostructured materials can be released** to the air, soil or water in common industrial processes and/or accidental events, and ultimately accumulate in the soil, water or biota, endangering the health of living organisms and ecosystems.
- The **likelihood of unintended release** during production, use, and end-of-life treatments of ENMs will tend to increase in the near term, being necessary to define proven methodologies and procedures to characterize current levels of exposure in indoor workplaces and the environment.

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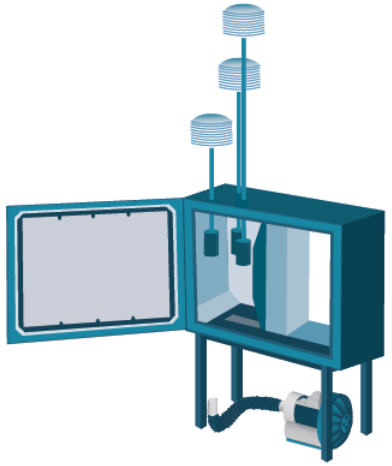
Overall view of the NanoMONITOR LIFE project

1. Concept and Objectives

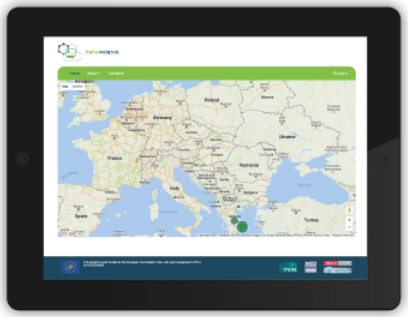
❑ Objectives

- The overall aim of the project is to develop a real-time information and monitoring system as a key innovative tool for the risk assessment of nanomaterials on a regulatory basis, in particular, REACH regulation

- The system is based on the development of an **online data analysis tool** for collecting and archiving data on the environmental concentration of ENMs, coupled with a newly developed **prototype and low cost nano-pollution monitoring system** able to continuously measure key airborne nano-pollutants.



By developing these tools, NanoMONITOR supports the risk assessment of nanomaterials under the REACH regulation and **promotes the use of measured data** to meet information requirements laid down on REACH for human and environmental risk characterization: exposure data and predicted environmental concentration levels (PEC).



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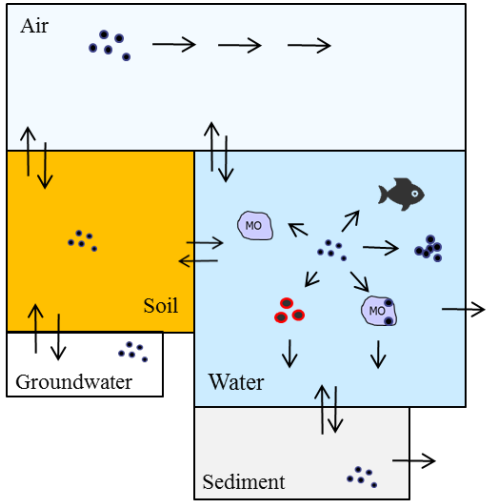
Overall view of the NanoMONITOR LIFE project

1. Concept and Objectives

❑ Objectives

Taking into account that REACH was adopted to improve the protection of human health and the environment, and considering the LIFE+ priority areas, the **specific objectives outlined in the proposal** are:

- New low cost monitoring station prototype for the measure of indoor and outdoor concentrations of ENMs
- To develop a software application to store, exchange and manage data on the concentration of ENMs.
- To design and develop standardized sampling and data analysis procedures to ensure the quality, comparability and reliability of the monitoring data used for risk assessment
- To implement and validate the NanoMONITOR integrated systems in case studies
- Support the calculation of the predicted environmental concentration (PEC) of ENMs in the context of REACH
- Transfer and disseminate the project results to a large community of SMEs and potential stakeholders



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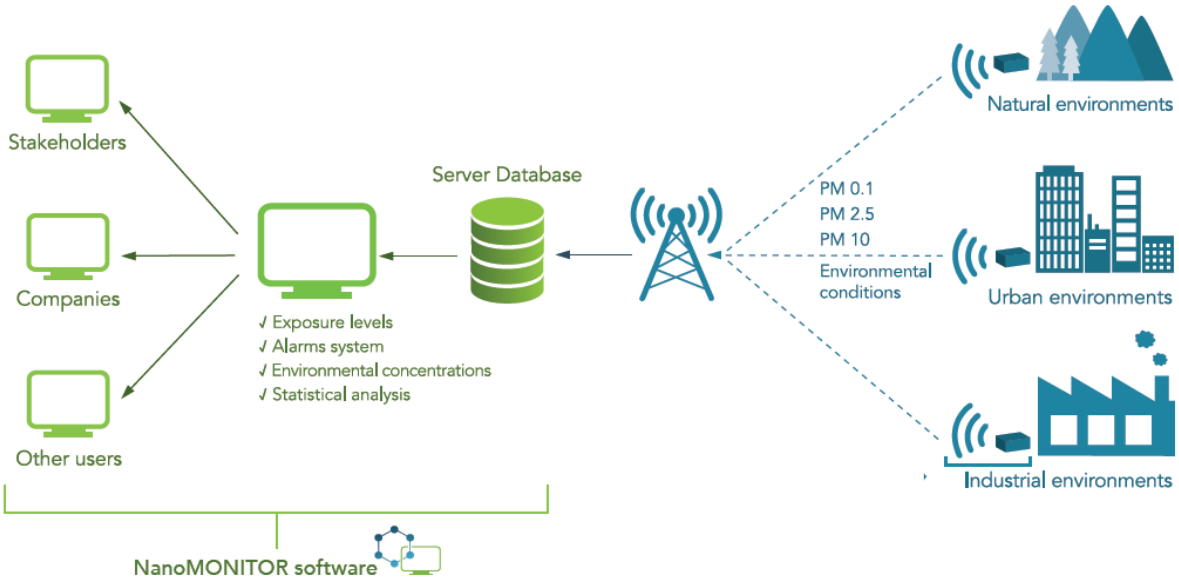
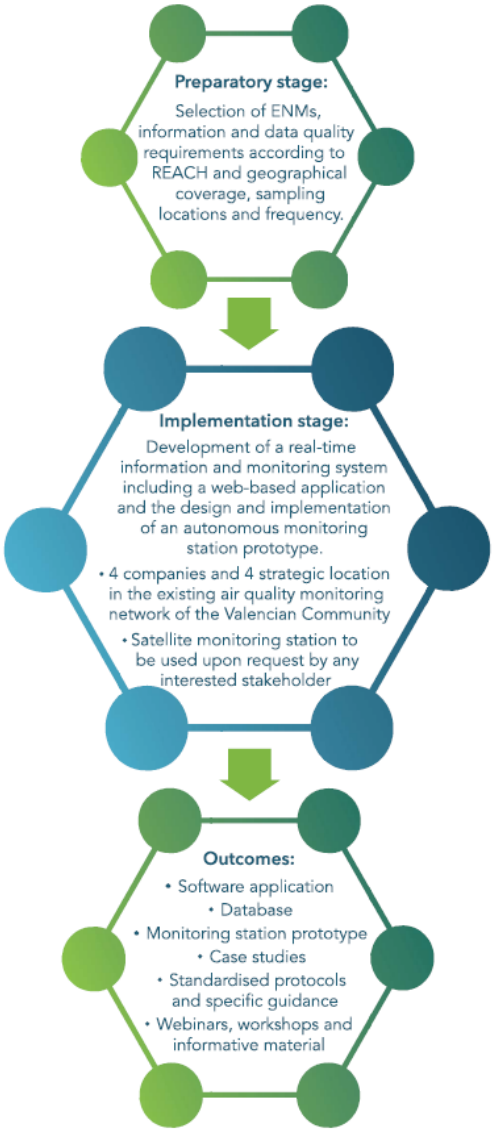
Overall view of the NanoMONITOR LIFE project

1. Concept and Objectives

❑ Concept

- The concept of the project stems from the need of generating robust, accessible, comparable and interoperable environmental and indoor air monitoring data to support the implementation of REACH regulation.





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Overall view of the NanoMONITOR LIFE project

1. Concept and Objectives

❑ Key objectives in 2017

Taking into account our scheduled calendar of activities and progress so far, our key objectives in 2017 are:

- Delivery of up to 5 fully operative monitoring stations in 2017
- Installation of 2 monitoring stations in urban environments (high traffic areas + subway)
- Delivery of the first version of the NanoMONITOR software platform in September 2017
- Installation of 2 monitoring stations in industrial facilities covering relevant processes in the ENM life cycle by October 2017
- Satellite station to be use by stakeholders upon request available in winter 2017
- Disseminate the project to stakeholders: NanoMONITOR 1st conference in Lancaster (UK) in autumn 2017
- Gain awareness thorugh the resence in relevant disseminations events in Europe.

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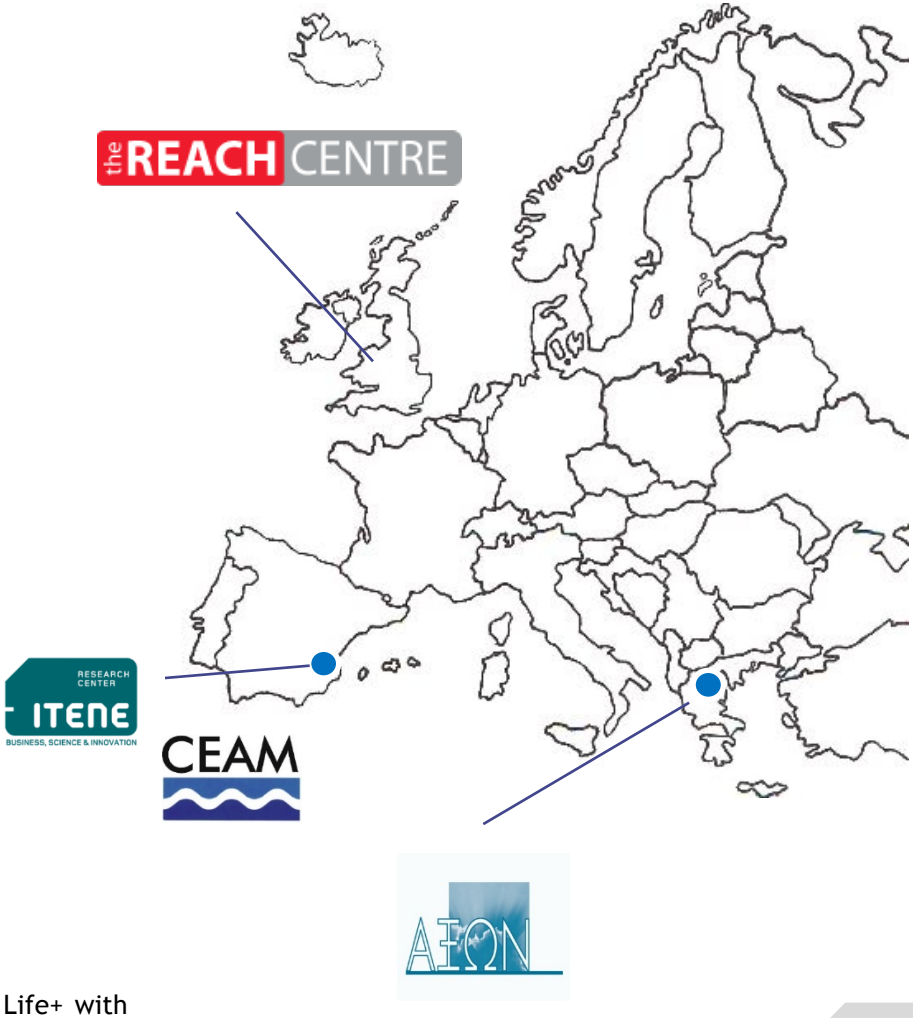
Overall view of the NanoMONITOR LIFE project

1. Concept and Objectives

❑ Consortium and main roles

The consortium of the project consists of 4 organizations representing 3 main areas: Spain, Greece and UK.



Coordinating Beneficiary

Instituto tecnológico del embalaje, transporte y Logística (ITENE)

Associated Beneficiaries:

- Fundación centro de estudios ambientales del mediterráneo (CEAM) - Spain
- The REACH Centre Ltd (TRC) – Uk
- AXON Enviro-Group Ltd (AXON) - Greece

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2. Overall view of the workplan and expected outcomes

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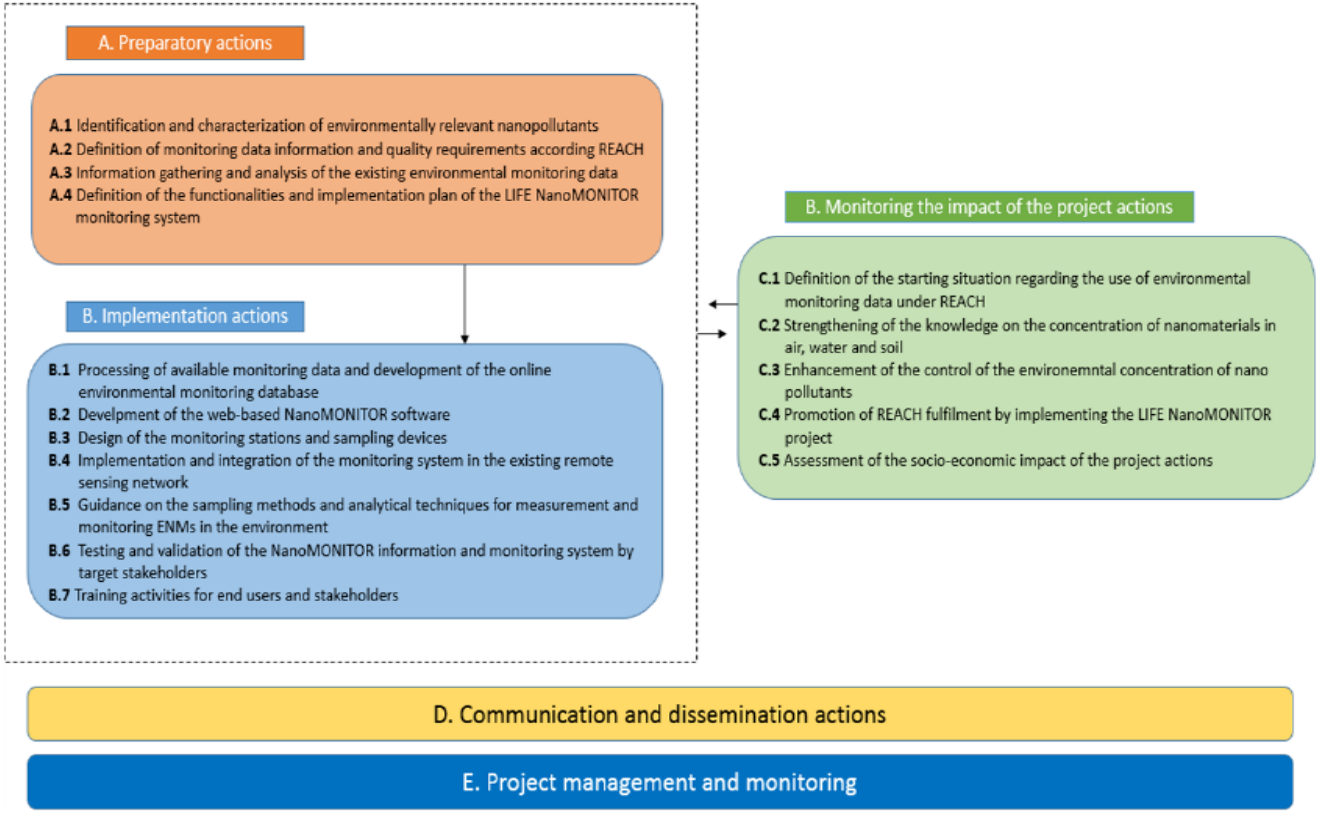
Overall view of the NanoMONITOR LIFE project

2. Overall view of the workplan and expected outcomes

❑ Scheduled activities

NanoMONITOR consists of 5 complementary actions, including:

A. Preparatory actions
B. Implementation
C. Monitoring
D. Communication
E. Management



Overall view of the NanoMONITOR LIFE project

2. Overall view of the workplan and expected outcomes

❑ A. Preparatory Actions

These actions focus on the selection of environmentally relevant ENMs, the information and data quality requirements according REACH and the geographical coverage and sampling locations and frequency.

Action Nº	Action Title	Partner id
A.1.	Identification and characterization of environmentally relevant nano-pollutants	ITENE
A.2	Definition of monitoring data information and quality requirements according REACH	ITENE
A.3	Information gathering and analysis of the existing environmental monitoring data	CEAM
A.4.	Definition of the functionalities and implementation plan of the LIFE NanoMONITOR monitoring system	AXON

Main outcomes are:

P1. Quality criteria to use measured data under REACH and relevant monitoring programs

P2. Detailed procedures to determine the validity of measured data

P3. Procedures to determine the validity of measured data

P4. Inventory of data on the concentration of ENMs in industrial, urban and environmental compartments

			PNC (particles/cm^3)		
Location	Country	Year †	Max	Min	Mean
Toronto	Canada	2006 – 2011	36800	11400	
Huelva	Spain	2008 – 2009			
Barcelona	Spain	2009	29449	6140	16847
Lugano	Switzerland	2009	47562	2751	14945
North Kensington	UK	2009	27295	795	12134
Bern	Switzerland	2009	93078	8888	28032
Marylebone	UK	2009	58017	4753	22156
Huelva	Spain	2009	67949	1091	17918
Sta. Cruz de Tenerif	Spain	2009	26249	1076	12008
Durham (NC)	US	2008			
Augsburg	Germany	2004 – 2006	24122	5387	
Milan	Italy	2009	117600	13500	
Mol	Belgium	2007			

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2. Overall view of the workplan and expected outcomes

❑ B. Implementation Actions

The implementation actions will focus on the development of the real-time information and monitoring system including the development of the web-based application and the design and implementation of the autonomous monitoring station prototype.

Action Nº	WP Title	Partner id
B.1.	Development of a web based library of exposure scenarios and measured data on the exposure and release of ENMs	ITENE
B.2	Development of the web-based NanoMONITOR software application	AXON
B.3	Design of the monitoring stations and measurement devices	ITENE
B.4.	Implementation and integration of the monitoring system in the existing air quality monitoring network	CEAM
B.5.	Sampling methods and analytical techniques for the measurement and monitoring of ENMs in the environment	ITEBE
B.6.	Testing and validation of the NanoMONITOR information and monitoring system by target stakeholders	ITENE
B.7.	Training activities for end users and stakeholders	TRC

Main outcomes are:

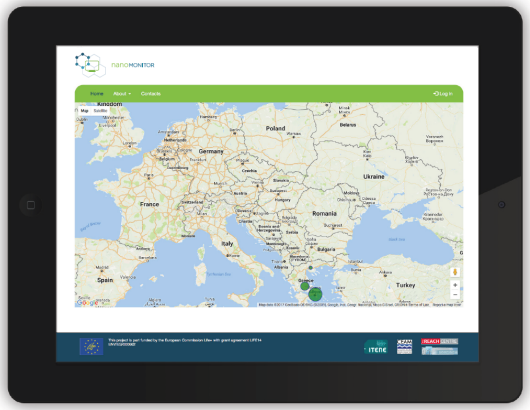
P1. On-line database of exposure scenarios

P2. NanoMONITOR Software Platform

P3. Up to 5 NanoMONITOR monitoring stations

P4. Publication of a list of 10 well defined and standardised protocols for collecting and sampling ENMs for risk assessment purposes

P5. New interactive guidance on the sampling methods and analytical techniques for the measurement and monitoring of ENMs in the environment



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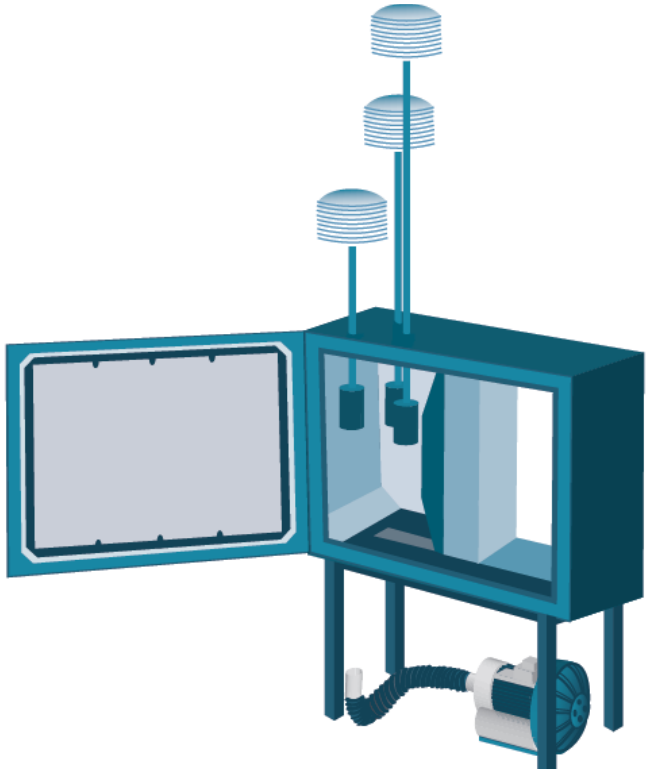
2. Overall view of the workplan and expected outcomes

B. Implementation Actions

A Real-time Information and Monitoring System.

Technical Details on the Monitoring Station:

- Detection of particles ranging in size from 10 to about 700 nm
- Geolocated real-time information on ENM concentrations
- Integrated plug and play solution designed for long term sampling and monitoring ENM concentrations
- Remotely configurable settings, readings and transmission periods
- Minimum maintenance requirements



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Overall view of the NanoMONITOR LIFE project

2. Overall view of the workplan and expected outcomes

B. Implementation Actions

Software application to store, exchange and manage data on the concentration of ENMs

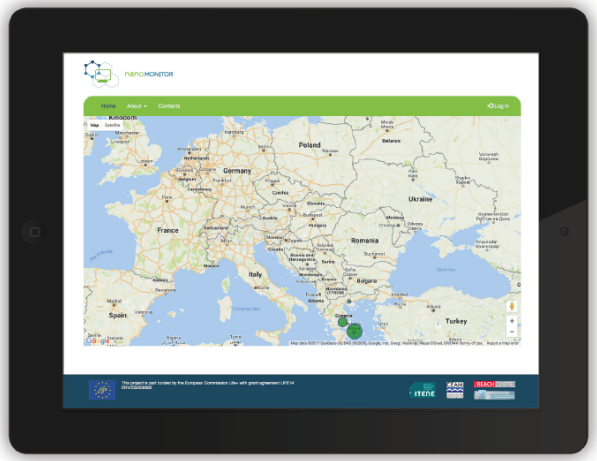
Multiple exporting data formats

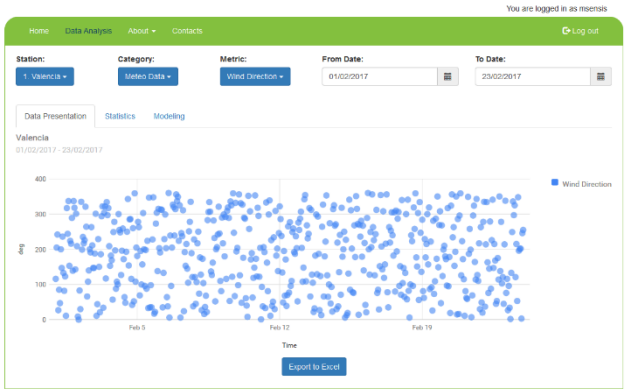
Real-time multiparametric graphical information

Easy data management options, including data storage, comparative analysis and modelling

High resolution maps

Access from smartphones and tablets





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Overall view of the NanoMONITOR LIFE project

2. Overall view of the workplan and expected outcomes

❑ C. Monitoring Actions

These actions are focused on the evaluation of the enhancement of knowledge on the concentration of ENMs in indoor and outdoor areas as a result of the activities conducted within the project, and the analysis of the impact of the project in REACH implementation.

Action Nº	WP Title	Partner id
C.1.	Definition of the starting situation regarding the use of environmental monitoring data under REACH	ITENE
C.2.	Strengthening of the knowledge database on the concentration of NMs in air, water and soil	TRC
C.3.	Promotion of the use of exposure/environmental monitoring data in the protection of human health and the environment	CEAM
C.4.	Promotion of REACH fulfilment by implementing the LIFE NanoMONITOR project	ITENE
C.5.	Assessment of the socio-economic impact of the project actions	ITENE

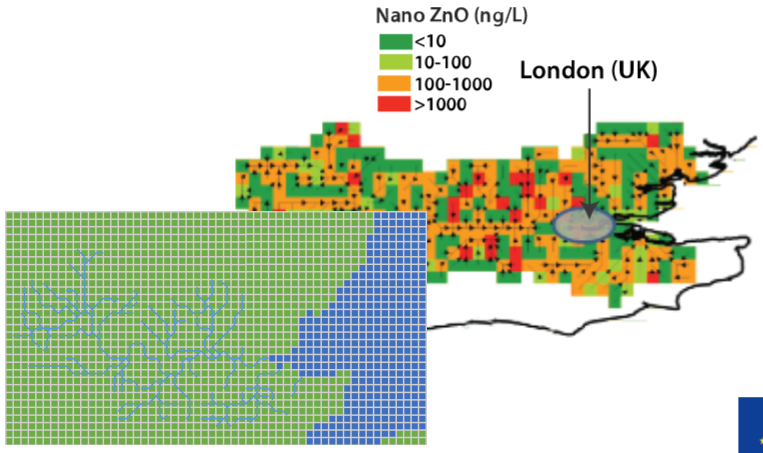
Main outcomes are:

P1. Continuously updated Inventory of current information of ENMs in indoor/outdoor environments

P2. Database with data to be used for regulatory risk assessment: PEC values + exposure levels

P3. Action plan to promote REACH implementation

P4. Report on the socioeconomic impact of the project



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2. Overall view of the workplan and expected outcomes

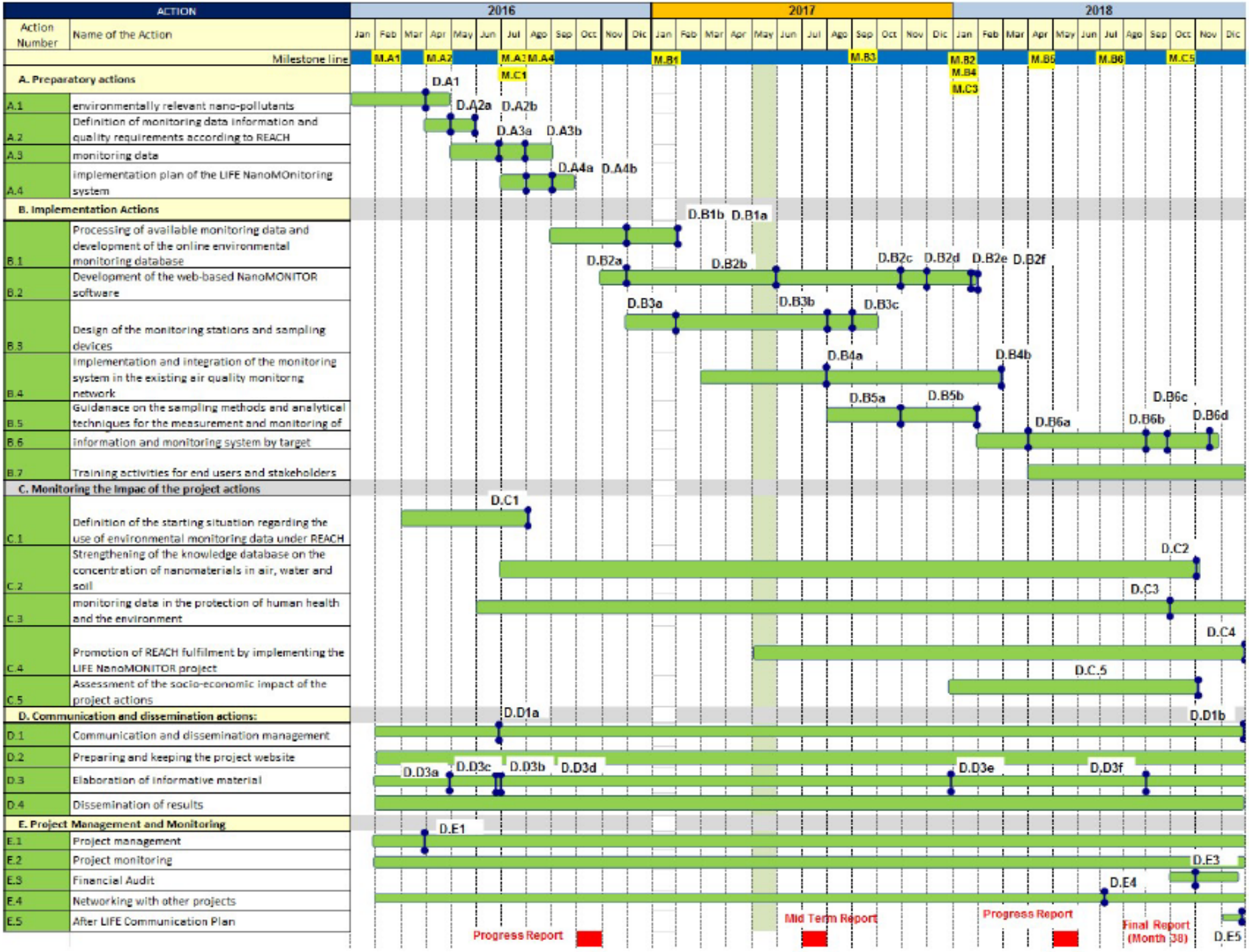
❑ D. Dissemination Actions

A number of dissemination activities will be conducted during the project execution period and during 3 years after the end date.

Scheduled actions include :

- Join Workshop on exposure assessment strategies. Madrid, May 2017
- NanoMONITOR international conference. Lancaster (UK), October 2017
- Join Workshop in risk assessment tools and models for decision making. Madrid, March 2018
- NanoMONITOR conference in Greece in Spring/ Summer 2018
- NanoMONITOR final conference in Valencia in Autumm 2018
- Webinars on exposure monitoring and sampling methodologies. June 2018

Dissemination materials (posters, leafleats, fatsheets), presentations, webinars and videos will be available in the web site.


ACTION
Action Number
Name of the Action
2016
2017
2018
Jan Feb Mar Apr May Jun Jul Ago Sep Oct Nov Dic
Milestone line
M.A1 M.A2 M.A3 M.A4 M.B1 M.B3 M.B2 M.B4 M.C3 M.C1 M.B5 M.B6 M.C5
A. Preparatory actions
A.1 environmentally relevent nano-pollutants
A.2 Definition of monitoring data information and quality requirements according to REACH
A.3 monitoring data
A.4 implementation plan of the LIFE NanoMOnitoring system
B. Implementation Actions
B.1 Processing of available monitoring data and development of the online environmental monitoring database
B.2 Development of the web-based NanoMONITOR software
B.3 Design of the monitoring stations and sampling devices
B.4 Implementation and integration of the monitoring system in the existing air quality monitorng network
B.5 Guidanace on the sampling methods and analytical techniques for the measurement and monitoring of
B.6 Information and monitoring system by target
B.7 Training activities for end users and stakeholders
C. Monitoring the impac of the project actions
C.1 Definition of the starting situation regarding the use of environmental monitoring data under REACH
C.2 Strengthening of the knowledge database on the concentration of nanomaterials in air, water and soil
C.3 monitoring data in the protection of human health and the environment
C.4 Promotion of REACH fulfilment by implementing the LIFE NanoMONITOR project
C.5 Assessment of the socio-economic impact of the project actions
D. Communication and dissemination actions:
D.1 Communication and dissemination management
D.2 Preparing and keeping the project website
D.3 Elaboration of informative material
D.4 Dissemination of results
E. Project Management and Monitoring
E.1 Project management
E.2 Project monitoring
E.3 Financial Audit
E.4 Networking with other projects
E.5 After LIFE Communication Plan
D.A1 D.A2a D.A2b D.A3a D.A3b D.A4a D.A4b
D.B1b D.B1a D.B2a D.B2b D.B2c D.B2d D.B2e D.B2f D.B3a D.B3b D.B3c D.B4a D.B4b D.B5a D.B5b D.B6c D.B6a D.B6b D.B6d
D.C1 D.C2 D.C3 D.C4 D.C.5
D.D1a D.D1b D.D3a D.D3c D.D3b D.D3d D.D3e D.D3f
D.E1 D.E3 D.E4 D.E5
Progress Report
Mid Term Report
Progress Report
Final Report (Month 38)

3. Progress so far and main results

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Overall view of the NanoMONITOR LIFE project

3. Progress so far and main results

Overall progress

Selection of the most **relevant ENMs** in the context of REACH

	Exposition (50%)					Hazard (50%)										
	Production (47,5%)	Uses (REACH Description) (2.5%)				Toxicity (25%)					Ecotoxicity (25%)					
Nanoparticle		SU (0.6%)	PC (0.6%)	PROC (0.6%)	AC (0.6%)	inh (5%)	der (5%)	oral (5%)	genot.(5%)	citot. (5%)	daphnia (5%)	alga (5%)	fish (5%)	worms (5%)	BAF5%	Total Score
SWCNTs	4,75	0,01157	0,00457	0,00551	0,00321	0	0,4	0,2	0	0	0,4	0,2	0	0,4	0,4	6,8
MWCNTs	4,75	0,01157	0,00457	0,00551	0,00321	0,4	0	0	0	0	0	0,4	0	0,4	0,4	6,4
Ag	2,375	0,01157	0,00457	0,00000	0,00641	0,4	0,4	0	0	0,4	0,4	0,4	0,4	0,4	0,4	5,6
TiO_2	4,75	0,02778	0,01372	0,02610	0,00481	0,2	0,4	0,2	0	0	0	0,4	0,4	0,4	0,4	7,2
ZnO	2,375	0,01389	0,00610	0,01103	0,00160	0,4	0,4	0,2	0,4	0,4	0,4	0,4	0,4	0,4	0,4	6,2
CeO_2	2,375	0,01157	0,00610	0,01287	0,00160	0,4	0,4	0	0,4	0,4	0,4	0,4	0	0,4	0,4	5,6
SiO_2	4,75	0,05556	0,03659	0,03860	0,00962	0	0	0	0	0	0,2	0	0	0,4	0,4	5,9
Graphene	2,375	0,00231	0,00000	0,00000	0,00160	0,4	0,4	0	0	0,4	0,4	0,4	0,4	0	0,4	5,2
Graphite	0,475	0,01157	0,00457	0,00551	0,00321	0	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0	0,4	3,7
Fullenere	0,475	0,00000	0,00457	0,00000	0,00160	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0	0,4	0,4	4,1
Fe_3O_4	4,75	0,01389	0,00000	0,00000	0,00000	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	8,8
Fe_2O_3	4,75	0,01620	0,00457	0,01287	0,00481	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0	0,4	0,4	8,4
$CaCO_3$	4,75	0,02315	0,00762	0,01691	0,00641	0,4	0	0	0	0	0,2	0,2	0	0,4	0,4	6,4
CuO	0,475	0,00000	0,00000	0,00000	0,00160	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0	0	0,4	3,7
SrO	0,475	0,00000	0,00000	0,00000	0,00000	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	4,5
SnO_2	0,475	0,00231	0,00000	0,00000	0,00160	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	4,5
MgO	0,475	0,00694	0,00000	0,00000	0,00000	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0	0,4	0,4	4,1
ZrO_2	0,475	0,00463	0,00000	0,00000	0,00000	0,4	0,4	0,2	0	0	0,4	0,4	0,4	0,4	0,4	3,5
Cu	2,375	0,00000	0,00000	0,00000	0,00000	0,4	0,4	0,4	0,4	0	0,4	0,4	0,2	0,4	0,4	5,8
Au	0,475	0,00231	0,00000	0,00000	0,00000	0,4	0,4	0,4	0	0,4	0	0,4	0	0,4	0,4	3,3
Ni	0,475	0,00000	0,00000	0,00000	0,00000	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0	0,4	0,4	4,1
Co	0,475	0,00231	0,00457	0,00368	0,00000	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	4,5
Cd-Se QDs	0,475	0,00463	0,00152	0,00000	0,00000	0,4	0,4	0,4	0,4	0	0,4	0,4	0,4	0,4	0,4	4,1
Al_2O_3	4,75	0,02546	0,01067	0,02206	0,00321	0,4	0,4	0	0	0	0	0,2	0	0	0,4	6,2
Cellulose	4,75	0,00926	0,00305	0,00000	0,00321	0,4	0,4	0,4	0	0	0,4	0,4	0,4	0,4	0,4	8,0

Overall view of the NanoMONITOR LIFE project

3. Progress so far and main results

Overall progress

Excel based tool to analyze if a certain data satisfy the requirements to be used for risk assessment purposes under the context of REACH and relevant monitoring programs

nanoMONITOR

Reliability Assessment for Exposure Data

This tool is intended to be used as a guidance to characterize the completeness of the metainformation from databases or scientific literature of Environmental or Ocuppational Exposure Monitoring data, as well as modellization data to be used waccording to the REACH guidelines.

HOW TO USE:

1- Select the scenario to which the database is referred from the table below:

Select the scenario
Model
Worker Indoor
Worker Outdoor
Urban Indoor
Urban /Rural Outdoor
Environmental emission AIR
Environmental emission-inmission WATER
Environmental emission-inmission SOIL

2- In the corresponding worksheet, select all the data referenced on the metainformation of the database.

3- The quality or completeness of the data will appear at the bottom as one of the three categories:

NOT VALID	Indicates that fundamental information is missing
VALID WITH RESTRICTIONS	Complementary information would be required to ensure the completitude of the data
VALID	The data is reliable and complete

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Worker Outdoor

Data Parameter checklist

Check all the parameters on which information is available

	I. Source information
☐	Objective/goal of measurements: regulatory program, research project task, etc.
☑	Data source: author, date of publication, data base of publication
☐	Contact data: adress, mail, phone number of the author or institution
☐	Followed estandar protocol/internal validated protocol (reference or explanation in the document itself)
	II. Description of the scenario
☐	Location of measurements (GPS coordenates, location, country)
☐	Pressure
☐	Relative Humidity
☐	Temperature
☐	Height of location (m.a.s.l)
☐	Height of the sampling place (m)
☐	Type of location: rural, urban, suburban (see instructions)
☐	Scenario area information (proximity of other activities, secondary sources)
☐	Type of influence: traffic, industry, background (see instructions)
☑	If traffic: distance to nearest traffic via (m)
☐	If traffic: traffic intensity (low / medium / high)
☐	If industry: distance to main focus (m)
☐	If industry: type of industrial activity
☐	Flow rate (air, water, etc.)
☐	Industry sector
☐	Task description
☐	Exposure route
☐	Risk Management Measures present in the process
☐	Operative Conditions of the process (task duration, frecuency, etc.)
☐	Work area information (proximity of other activities, secondary sources)
☐	Sampling location (source, personal, workplace)
☐	Attached schemes or pictures of the scenario
☐	Intermittent, shot or continuous process
	VI. Offline measurement Information
☐	Analytical method (standard, internal, not validated)
☐	Sampling protocol (number of samples, location of sampler, transport and conservation conditions,...)
☐	Sampler location (source, personal, workplace)
☐	Sampling pattern (frecuency and duration)
☐	Equipment
☐	Resolution
☐	Range
☐	Precision
☐	Accuracy
☐	Sensitivity

NO VALID

Select All

RESET

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Overall view of the NanoMONITOR LIFE project

3. Progress so far and main results

Overall progress

- Inventory of the concentration of ENMs in relevant environmental matrices and indoor workplaces

ES	CES	Background	Surface ($\mu m^2/cm^3$)	Mass (mg/m^3)	Number ($\#/cm^3$)	Ratio
Production of carbonaceous materials		34694 (N)			105856	3.1
Production of carbonaceous materials		34694 (N)			63130	1.8
Production of carbonaceous materials		57000 (N)		81000		1.4
Production of carbonaceous materials		57000 (N)		85000		1.5
Separation and packaging of Al_2O_3	Separation	19000 (N)			43000	2.3
	Packaging	19000 (N)			34000	1.8
	Transportation	19000 (N)			56000	2.9
Separation and packaging of Al_2O_3	Separation	50 (M)		200		4
	Packaging	50 (M)		460		9.2
	Transportation	50 (M)		510		10.2
Separation and packaging of Al_2O_3	Separation	18 (M)	77			4.3
	Packaging	18 (M)	57			3.2
	Transportation	18 (M)	93			5.1
Production of MWCNT	Production	2900 (N)	8.8	0.026	30700	10.6
	Harvesting	30700 (N)	24.7	0.032	31800	1.0
Harvesting of DWCNT		2900 (N)	33.5	0.032	31800	10.9

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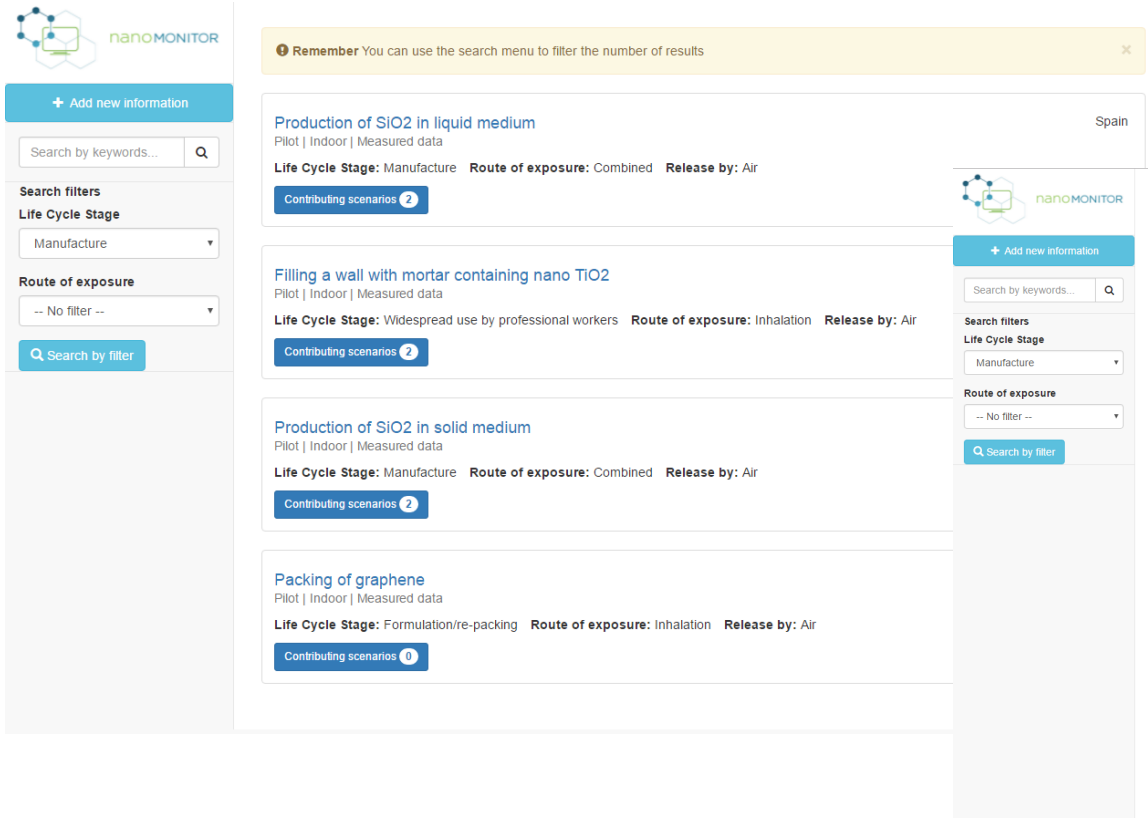
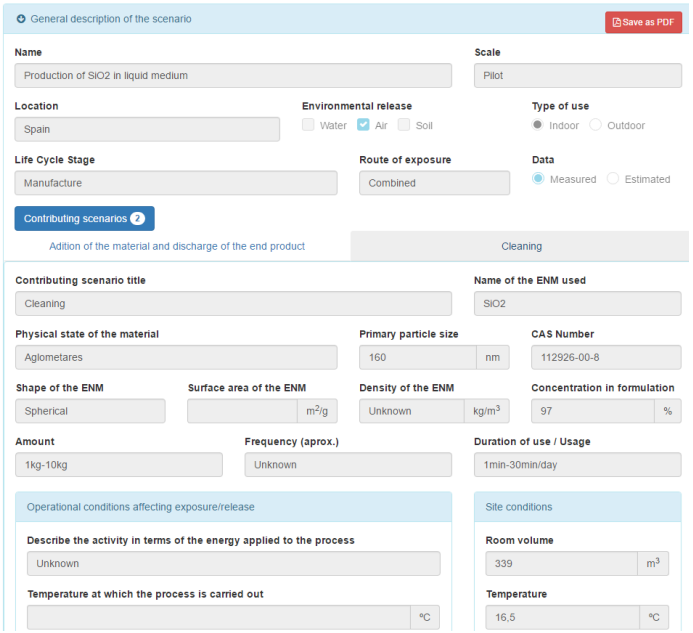
Overall view of the NanoMONITOR LIFE project

3. Progress so far and main results

Overall progress

- On line library of exposure scenarios





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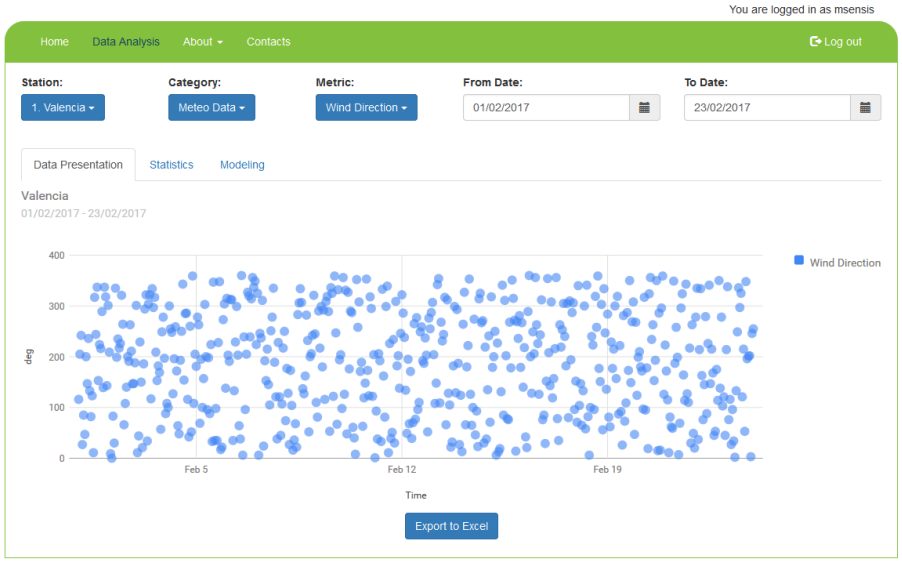
Overall view of the NanoMONITOR LIFE project

3. Progress so far and main results

Overall progress

- Nano Monitor Portal created:
  - Pages
  - Databases
  - Import of data from sources
  - Presentation of data
  - Export of presented data
  - Statistic models
  - User roles



- Administrator Portal created
  - Administration of user and roles
  - Administration of stations
  - Administration of metrics

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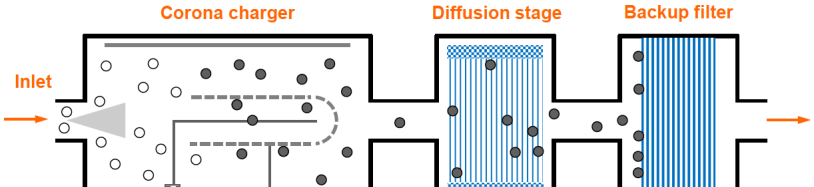
Overall view of the NanoMONITOR LIFE project

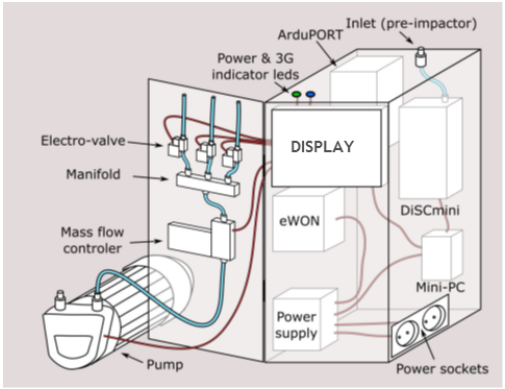
3. Progress so far and main results

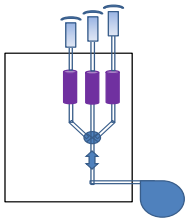
Overall progress

NanoMONITOR monitoring station in progress

- Detection of particles ranging in size from 10 to about 700 nm
- Geolocated real-time information on ENMs concentrations
- Integrated plug and play solution designed for long term sampling and monitoring ENMs concentration
- Remotely configurable settings, readings and transmission periods
- Minimum maintenance requirements.







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Overall view of the NanoMONITOR LIFE project

3. Progress so far and main results

Inventory of published data on ENMs concentration in the environment

Place / geolocation	Bibliography			Nanomaterial	Compartment	PEC	Unit	Range
	Titol	Authors	year					
Switzerland	Exposure Modeling of Engineered Nanoparticles in the Environment	Nicole C. Muller and Bernd Nowack	2008	TiO_2	Air	1.5 × 10-3	µg m-3	
					Water	0.7	µg L-1	
					Soil	0.4	µg kg-1	
				Ag	Air	1.7 × 10-3	µg m-3	
					Water	0.03	µg L-1	
					Soil	0.02	µg kg-1	
				CNT	Air	1.5 × 10-3	µg m-3	
					Water	0.0005	µg L-1	
					Soil	0.01	µg kg-1	
Switzerland	A dynamic probabilistic material flow modeling method	Nikolaus A. Bornh€oft, Tian Yin Sun, Lorenz M. Hilty, Bernd Nowack	2016	CNT	Soil	74	ng/kg	
UK	Probabilistic modelling of prospective environmental concentrations of gold nanoparticles from medical applications as a basis for risk assessment	Indrani Mahapatra, Tian Yin Sun, Julian R. A. Clark, Peter J. Dobson, Konrad Hungerbuehler, Richard Owen, Bernd NowackEmail authorView ORCID ID profile and Jamie Lead	2015	Gold	Surface water	440	pg/L	210-730
					STP sludge	470	µg/kg	94-150
					Sludge treated soil	300	ng/kg· years	230-370
					Sediment	290	ng/kg· years	130-450
UK	Current and future predicted environmental exposure to engineered nanoparticles	Boxall, A; Chaudhry, Q; Sinclair, C; Jones, A; Aitken, R; Jefferson, B; Watts, C	2007	CeO_2	Soil	<0.01	mg/kg	
					Water	<1	ng/l	
UK	Fate of Manufactured Nanomaterials in the Australian Environment	G.E. Batley and M.J. McLaughlin	2010	Al_2O_3	Water	0.002	µg /L	
					Soil	0.01	µg/kg	
				CeO	Water	<0.0001	µg /L	
					Soil	0.01	µg/kg	
				Fullerenes	Water	0.31	µg /L	
					Soil	44,7	µg/kg	
				Au	Water	0.14	µg /L	
					Soil	20,4	µg/kg	
				Ag	Water	0,01	µg /L	
					Soil	1.45	µg/kg	
				TiO_2	Water	24.5	µg /L	
					Soil	1030	µg/kg	
				ZnO	Water	76	µg /L	
					Soil	3190	µg/kg	
				SiO_2	Water	0.0007	µg /L	

Overall view of the NanoMONITOR LIFE project

3. Progress so far and main results

- Publishable reports in the project web site
- Dissemination materials

www.lifenanomonitor.eu/en/dissemination/

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Download: NanoMONITOR Factsheet

Download: NanoMONITOR 1st Stakeholders' Day Flyer

Newsletters
Download: Newsletter July 2016

Download: Newsletter January 2017

Results

Download: Report on the functionalities and system requirements of the NanoMONITOR integrated system

Posters

Download: NanoMONITOR poster on New Tools and Approaches for Nanomaterial Safety Assessment Conference, 7-9 February 2017, Malaga, Spain

Download: NanoMONITOR poster on SRA Policy Forum: Risk Governance for Key Enabling Technologies, 1-3 March 2017, Venice, Italy

RECENT POSTS

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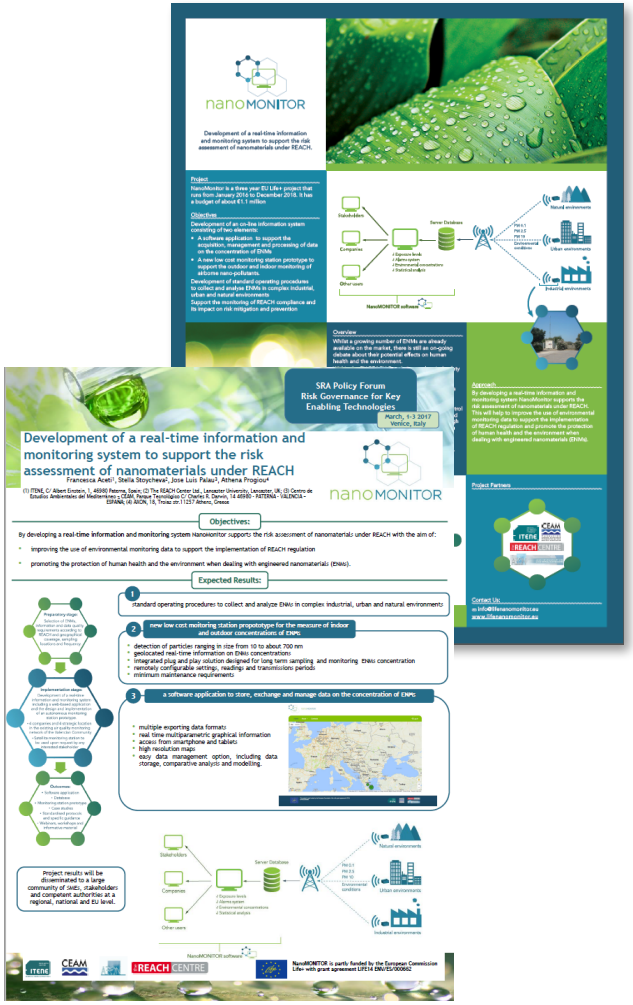

4. Summary conclusion

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Overall view of the NanoMONITOR LIFE project

4. Summary conclusions

- NanoMONITOR develops an innovative system to monitor the concentration of ENMs in indoor workplaces and the environment.
- NanoMONITOR will increase the current knowledge on the concentration of ENMs in both indoor workplaces and the environment
- A set of tool to support REACH implementation will available before summer 2017, including a complete library of common exposure scenarios, an inventory of data on the concentration of ENMs in relevant areas to support PEC calculation and the NanoMONITOR software platform as such.
- Interaction with stakeholders is mandatory to validate the operation of the nanomonitor software and transfer results to regulatory bodies and companies.
- An open form to request / book a satellite monitoring station to be open in October 2017.
- Agreement on methods and protocols for exposure assessment and ENMs detection / characterization in indoor workplaces and environmental matrices on prime importance for regulatory risk assessment.

Thank you for your attention ¡

nanoMONITOR

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