



ELD Financial security in Spain

Isaac Sánchez Navarro
Technical Advisor

Directorate-General of Environmental Quality and Assessment

**Ministry for the Ecological Transition
and the Demographic Challenge**



ELD OBJECTIVES AND PRINCIPLES

Objectives of Directive 2004/35/EC

1. **Prevent environmental damage**
2. **Remedy such damage when it occurs**

Principles on which Directive 2004/35/EC is based on

- **Prevention principle**
- **Polluter pays principle**

Elements necessary to take into account to evaluate Directive 2004/35/CE

1. Elements that allow the evaluation of the prevention of environmental damage objective
2. Elements that allow the evaluation of the remedying of environmental damage objective



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ELD objectives & principles

FIRST LINE OF DEFENSE IN ELD

PREVENT DAMAGES “PREVENTION” PRINCIPLE

RISK MANAGEMENT
MEASURES

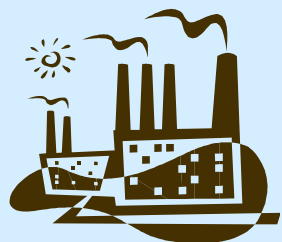
PREVENTION
MEASURES

“LIMITATION”
MEASURES

ENVIR. RISK ANALYSIS

Reduction of costs

Reduction of FP cost/ exempt



Normal activity

Threat of damage

SECOND LINE OF DEFENSE IN ELD

REMEDY DAMAGES “POLLUTER PAYS” PRINCIPLE

First pillar

REMEDIATION
MEASURES

Entered into
force in 2007

Second pillar. Not mandatory in Directive

FINANCIAL PROVISION

In force
2018 (P1)
2019 (P2)
2021-2022 (P3)



Environmental Damage



Law 26/2007 second pilar: MFS + ERA

- **Some Annex III operators must ensure they have the financial security to cover the environmental liability inherent in their intended activity/s.**
 - ✓ **Seveso, industrial emissions, and waste management from mining (gradual introduction from 2019 to 2022)**
- **Has to be determined based on an environmental risk analysis in order to:**
 - Determine if are under the obligation to have a FS or are exempted, and calculate its amount
 - It is a **risk management** decision-making tool, that **contributes to prevent damages**
- **20 M € limited coverage** (prevention, limitation and primary remediation costs)
- **Insurance; bank guarantee; technical reserve**
- **Exemptions mechanisms (art. 28 Law 26/2007):**
 - Operators likely to cause damage remediation estimated to be less than 300,000 €
 - Or between 300,000 € and 2,000,000 € and are associated to EMAS and/or ISO 14001 Standard
- **Sectorial environmental risk analysis tools** to help operators carry out the individual ERA and share the costs between operators

MFS + Risk analysis = Risk management that contributes to prevent damages

Contribution of MFS + ERA to ELD objectives

1. Prevent damages objective (“prevention” principle)

- Environmental risk analysis identifies main sources of risk, **enabling global risk management** of the facilities
- This promotion of “environmental risk management culture” contributes to a reduction in the number of accidents affecting the environment and/or minimising their consequences. This is very difficult to quantify, but has to be considered in the evaluation of ELD. Proposal: Development of indicators (ERA carried out, risk management plans, FS,...)

2. Remedy damages objective (“polluter pays” principle)

- In case of environmental damage the financial security **will cover primary and prevention/limitation costs (“polluter pays” principle)**
- The amount of financial security is calculated based on the ERA, and ensures it reflects real remediation costs

Benefits of the mandatory financial security system + environmental risk analysis

• Benefits for operators

- Lower operational risks and greater viability in case of accident
- Makes them aware of their risks (environmental and in terms of costs) and help in corporate decision-making

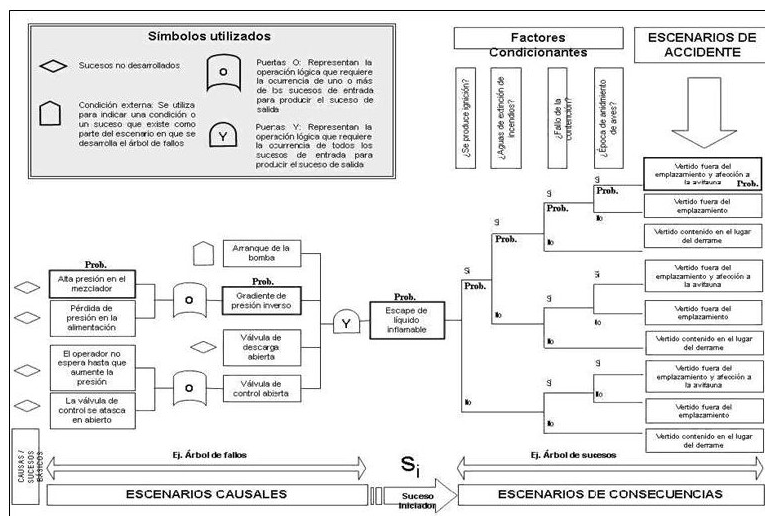
• Benefits for society

- Prevention of damages, and if they occur remediation costs are not borne by society but transferred to operators



Law 26/2007 second pilar: MFS + ERA

Environmental risk analysis and risk management



Esquema metodológico norma UNE 150.008

Suceso iniciador	Prob. (veces/año)	Vol. (m³)	¿Actúa eficazmente la contención automática?	Prob. (veces/derrame)	Vol. (m³)	¿Actúa eficazmente la contención manual?	Prob. (veces/derrame)	Vol. (m³)	No se aplica ninguna gestión de aguas y derrames	Prob. (veces/derrame)	Vol. (m³)	Código	Prob. Esc. (veces/año)	Vol. Esc. (m³)	Relevante	Recursos potencialmente afectados			
																A	S	H	E
Derrame de Catalizador líquido 1	5,10E-07	14,00	Sí	9,00E-01	0,00	Sí	5,00E-01	0,00	Sí	0,00E+00	0,00	E.1.1	0,00E+00	0,00	No				
									No	1,00E+00	0,00	E.1.2	2,30E-07	0,00	No				
									Sí	0,00E+00	0,00	E.1.3	0,00E+00	0,00	No				
									No	1,00E+00	0,00	E.1.4	2,30E-07	0,00	No				
	No	1,00E-01	12,00	Sí	5,00E-01	11,00	Sí	0,00E+00	11,00	E.1.5	0,00E+00	11,00	No	No	No				

Q: posible afección por vertido de agentes químicos
F: posible afección por vertido de agentes físicos (temperatura)

Figura 6. Árbol consecucional para el suceso S.A.1y2b: fuga/derrame de catalizador líquido 1 desde depósito fijo aéreo o por colisión



Law 26/2007 second pillar: MFS + ERA

Health risk analysis and risk management (COVID 19 infection pathways and “preventive” measures)

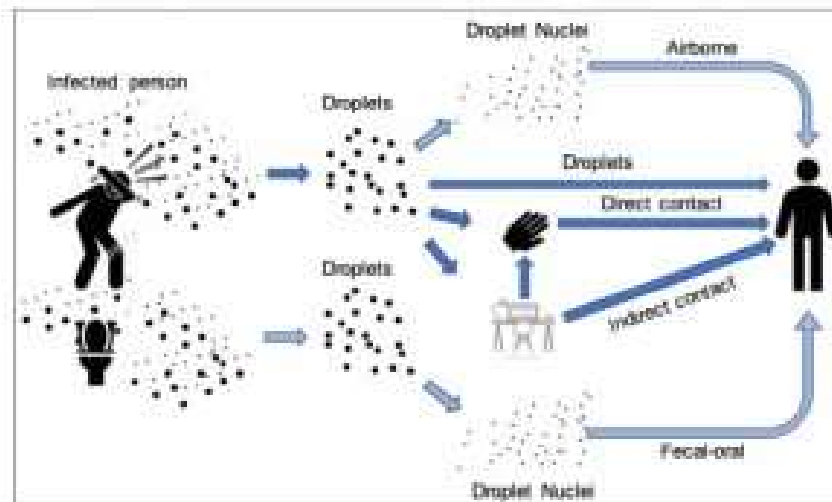
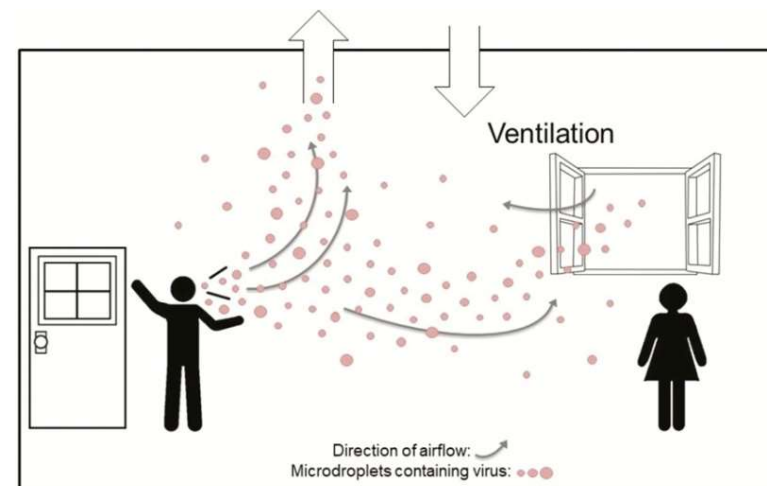
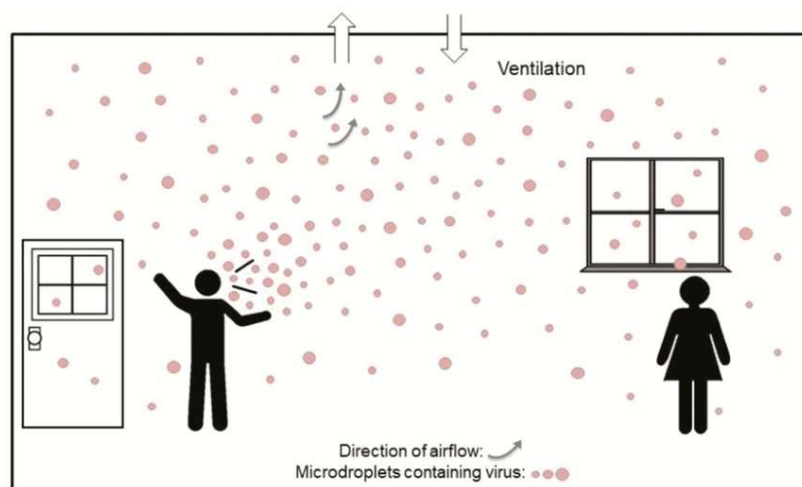


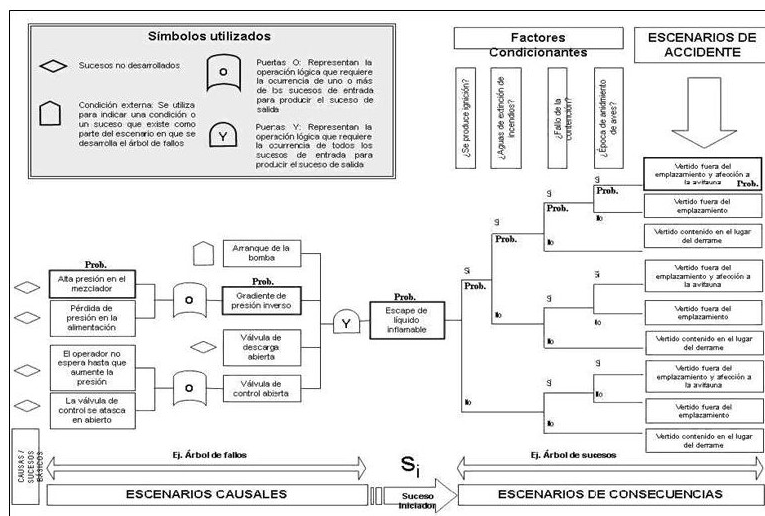
Figure 1. WHO reported exposure mechanisms of COVID-19 SARS-CoV-2 (droplets dark blue colour; light blue colour) exposure mechanism that is known from SARS-CoV-1 and other flu; currently there is no reported evidence specifically for SARS-CoV-2 (Figure courtesy Francisco Franchiniani).





Law 26/2007 second pilar: MFS + ERA

Environmental risk analysis and risk management



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									No	1,00E+00	0,00	E.1.2	2,30E-07	0,00	No				
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Law 26/2007 second pillar: MFS + ERA

Environmental Liability Information System (SIRMA)



ARM-IDM-MORA computer applications

Procedure for mandatory financial security determination in Spain

- Environmental Risk Analysis
- Determination of financial security:

1. Identification of risk scenarios and their probability
2. IDM calculation: reference scenario determination
3. Risk of each scenario ($IDM * \text{probability of occurrence}$)
4. Selection of scenarios that represent 95% of total risk
5. Environmental damage cost of **reference scenario**



A. Quantification

B. Cost



Financial security: Cost of primary remediation + 10% prevention measures



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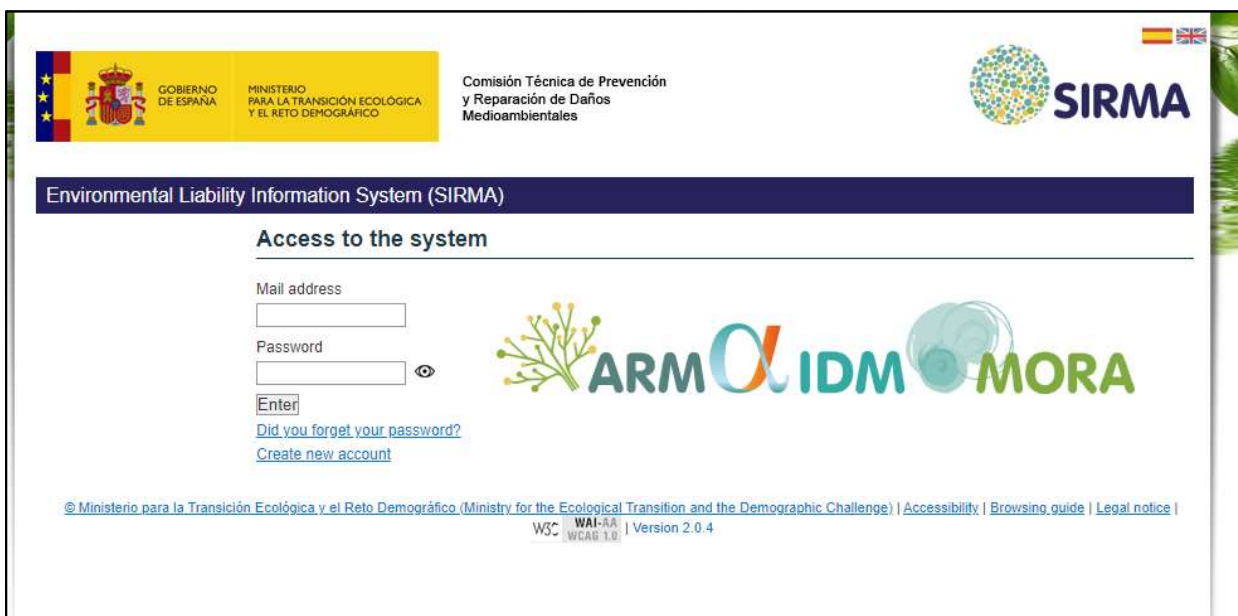
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Law 26/2007 second pillar: MFS + ERA

Environmental Liability Information System (SIRMA)

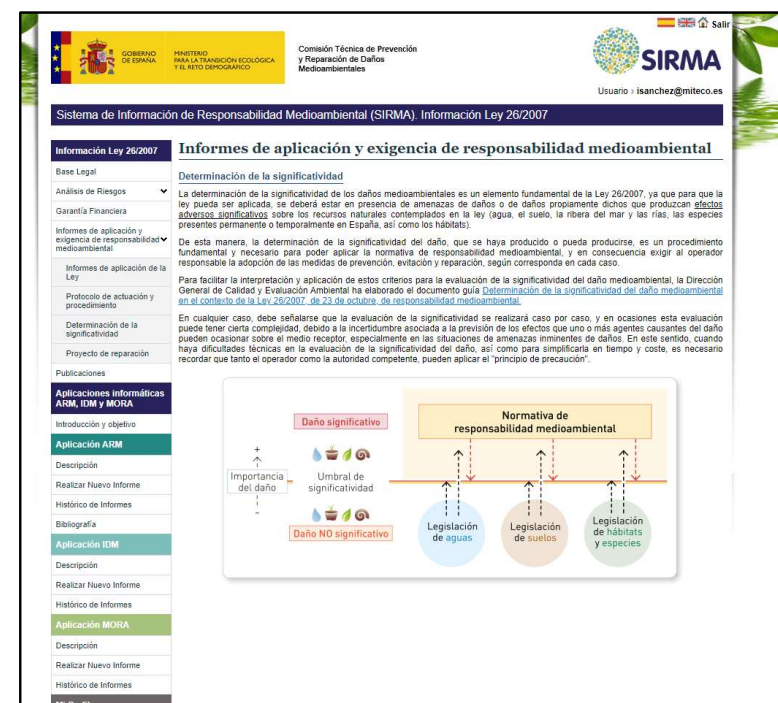


- Free access (registration required). **Available in Spanish and English**
- User's guide **available in Spanish and English**



The screenshot shows the login interface of the Environmental Liability Information System (SIRMA). At the top, there is a header with the Spanish flag, the text 'GOBIERNO DE ESPAÑA' and 'MINISTERIO PARA LA TRANSICIÓN ECOLÓGICA Y EL RETO DEMOGRÁFICO', and the 'SIRMA' logo. Below this, the text 'Comisión Técnica de Prevención y Reparación de Daños Medioambientales' is visible. The main heading is 'Environmental Liability Information System (SIRMA)'. Underneath, there is a section titled 'Access to the system' with a form for 'Mail address' and 'Password'. There is an 'Enter' button and links for 'Did you forget your password?' and 'Create new account'. To the right of the form is a large graphic with the text 'ARM IDM MORA' and a stylized plant. At the bottom, there is a footer with copyright information: '© Ministerio para la Transición Ecológica y el Reto Demográfico (Ministry for the Ecological Transition and the Demographic Challenge) | Accessibility | Browsing guide | Legal notice |' and 'W3C WAI-AA WCAG 1.0 | Version 2.0.4'.

[Link to SIRMA \(English\)](#)



The screenshot shows the user's guide for the SIRMA system. It features a sidebar with a table of contents including 'Base Legal', 'Informes de aplicación y exigencia de responsabilidad medioambiental', 'Protocolo de actuación y procedimiento', 'Determinación de la significatividad', 'Proyecto de reparación', 'Publicaciones', 'Aplicaciones informáticas ARM, IDM y MORA', 'Introducción y objetivo', 'Aplicación ARM', 'Descripción', 'Realizar Nuevo Informe', 'Historico de Informes', 'Aplicación IDM', 'Descripción', 'Realizar Nuevo Informe', 'Historico de Informes', 'Aplicación MORA', 'Descripción', 'Realizar Nuevo Informe', and 'Historico de Informes'. The main content area is titled 'Sistema de Información de Responsabilidad Medioambiental (SIRMA). Información Ley 26/2007'. It includes a section 'Determinación de la significatividad' with text explaining the process and a diagram. The diagram shows a flow from 'Importancia del daño' to 'Daño significativo' and 'Daño NO significativo'. It also shows a 'Normativa de responsabilidad medioambiental' box with arrows pointing to 'Legislación de aguas', 'Legislación de suelos', and 'Legislación de hábitats y especies'. The user's email 'Usuario : lsanchez@mitico.es' is visible in the top right corner.

[SIRMA user's guide \(English version\)](#)

[Annexes \(English version\)](#)

Environmental Liability Information System (SIRMA)



- Gathers all the documents, guides, protocols and tools developed
- Access to ARM, IDM and MORA computer applications, developed for helping operators to carry out the environmental risk analysis and determine the mandatory financial security



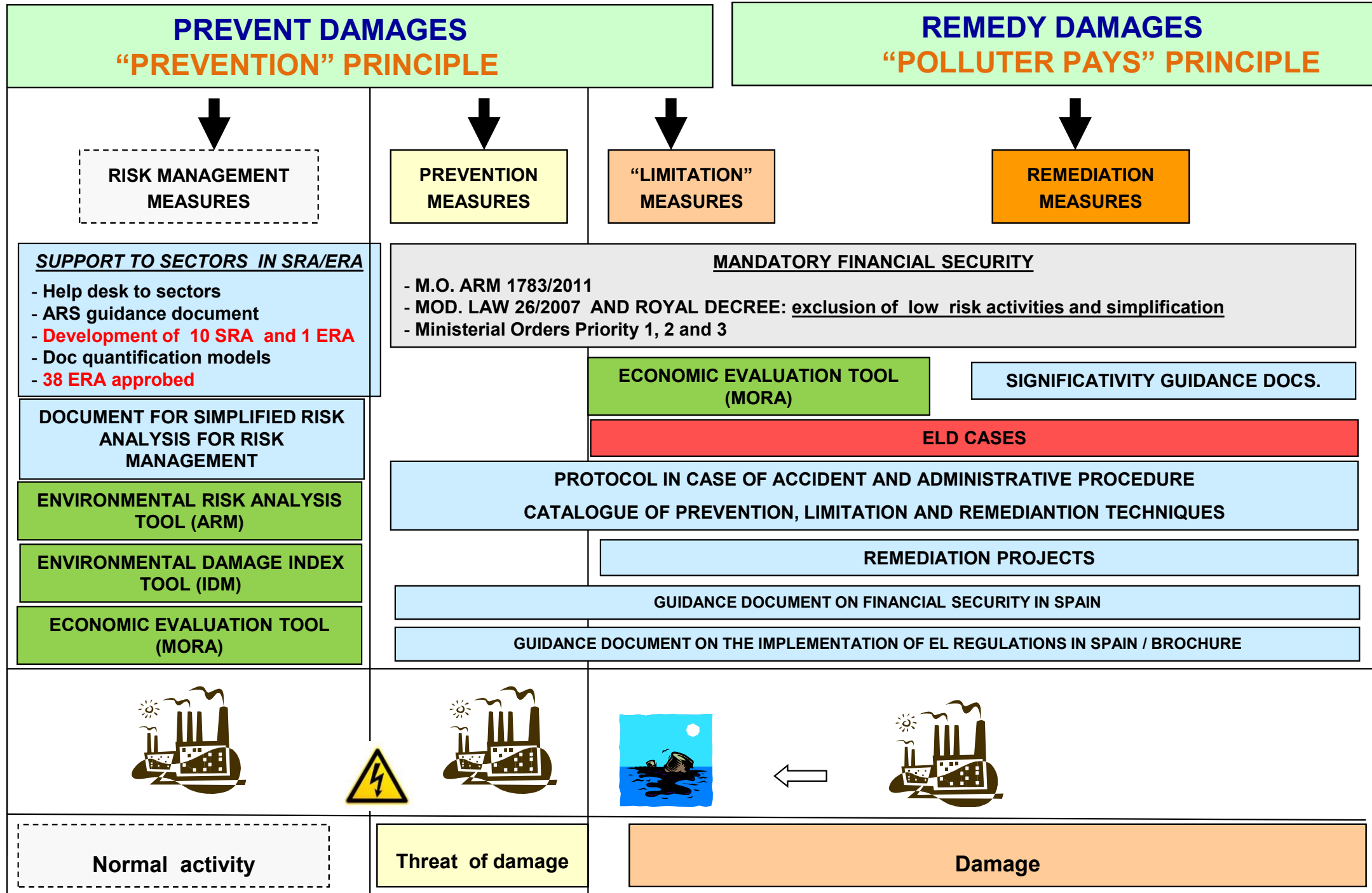
Information on Law 26/2007 on environmental liability

- ✓ Legal basis
- ✓ Risk Analysis
- ✓ Financial Security
- ✓ Implementation reports and environmental liability enforcement
- ✓ Publications
- ✓ FAQs

ARM-IDM-MORA computer applications

- ✓ Global ARM-IDM-MORA project
- ✓ ARM application
- ✓ IDM application
- ✓ MORA application

IMPLEMENTATION / APPLICATION OF LAW 26/2007





Environmental Liability Information System (SIRMA)



- 10 Sectorial environmental risk analysis, 1 Scale Chart and 1 individual ERA funded. All available on MITERD webpage



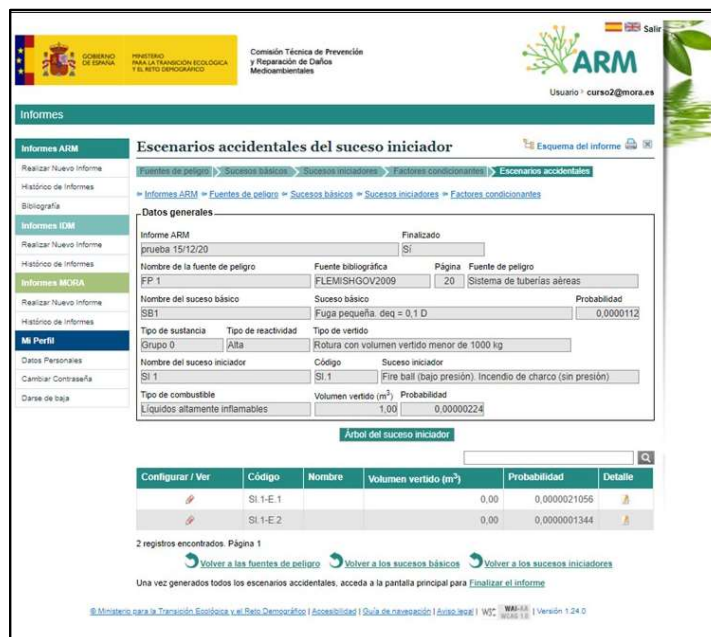
Sector-specific risk analysis instrument or rate table	Date of creation
Rate table for the paint and printer ink manufacturing sector, created for the Asociación Española de Fabricantes de Pinturas y Tintas de Imprimir (ASEFAPI).	2011
Guide to methodology for the polymetallic sulphide and sodium and potassium salts mining industry, created for the Confederación Nacional Empresarios Minería y Metalurgia (CONFEDEM).	2012
MIRAT for the olive oil and oilseed industry, created for the Federación Española de Industrias de la Alimentación y Bebidas (FIAB).	2012
Guide to methodology for hazardous and non-hazardous waste management activities, created for the Asociación Nacional de Gestores de Residuos de Automoción (AN- GERE), Asociación de Empresas Gestoras de Residuos y Recursos Especiales (ASEGRE) and Federación Española de la Recuperación y el Reciclaje (FER).	2015
MIRAT for road freight transport activities, created for the Confederación Española de Transporte de Mercancías (CTEM).	2015
MIRAT for the smelting industry, created for the Federación Española de Asociaciones de Fundidores (FEAF).	2016
MIRAT and rate table for the poultry meat and egg sector.	2018
MIRAT and rate table for the pig sector.	2019

- 38 **voluntary** sectorial environmental risk analysis developed and approved



ARM-IDM-MORA computer applications

- Helps in the elaboration of the ERA, creating the “**events trees**”: selection of sources of danger; determination of initiating events; introduction of conditioning factors; and obtaining the accident scenarios with their probability and, where appropriate, the amount of pollutant released
- Identifies high risk scenarios (high probability of occurrence, or the magnitude of the agent involved) allowing the implementation of **risk management decisions**





Environmental Damage Index (IDM)

ARM-IDM-MORA computer applications

- It allows to estimate the **order of magnitude of the damage** of each risk scenario
- It gives a semi-quantitative result that allows to **classify the risk scenarios** by the potential damage they can cause
- It is based on cost **estimations of primary recovery costs**, but IDM is non-dimensional (no units)

Sistema de Información de Responsabilidad Medioambiental (SIRMA) Environmental Damage Index (IDM)

Law 26/2007 information

Description

Legal Basis

Risk Analysis

Financial Security

Application and demand for environmental responsibility reports

Publications

Computer applications

ARM, IDM and MORA

Introduction and aim

IDM Application

Description

Create a New Report

Reports Repository

Application bibliographic sources

Registration of bibliographic sources

IDM Application

Description

Create a New Report

Reports Repository

2 registers found Page 1

MORA Application

Description

Create a New Report

Reports Repository

My Profile

Personal Data

Change Password

Cancel account

Consultation of IDM reports

Searching panel

Name Date from Date to User Completed

Enter data of filter

Name	Date of performance	Version	User	Completed	Duplicate	Modify	Delete
Informe IDM 01	02/07/2018	IDM/1	XXXXX XXXXXXXXX	Yes			
Informe IDM 02	03/04/2020	IDM/1	XXXXX XXXXXXXXX	No			
Informe IDM 03	03/09/2020	IDM/1					

Consultation of scenarios included in the IDM report

Report IDM data

Name Completed

Informe IDM 01

Reference scenario for the calculation of the financial guarantee

The reference scenario is Excesivo gua 01

Export to Excel Export to PDF

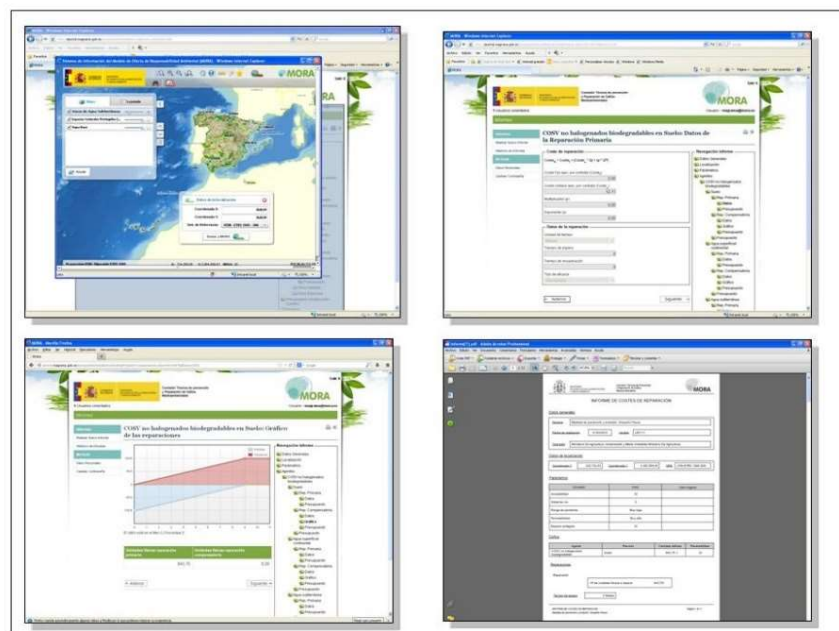
Ref.	Scenario	Probability	SDR value	Fulfilled	Duplicate	Modify	Delete
✓	Excesivo gua 01	1.36	218.733.95	Yes			
	Excesivo 02	1.36	117.358.05	Yes			

2 registers found Page 1



ARM-IDM-MORA computer applications

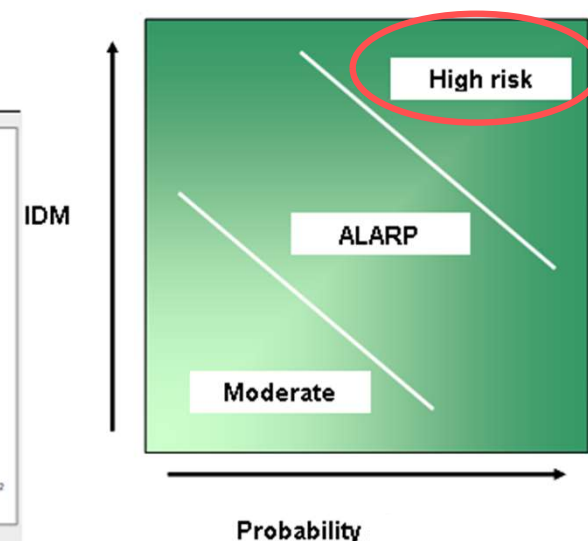
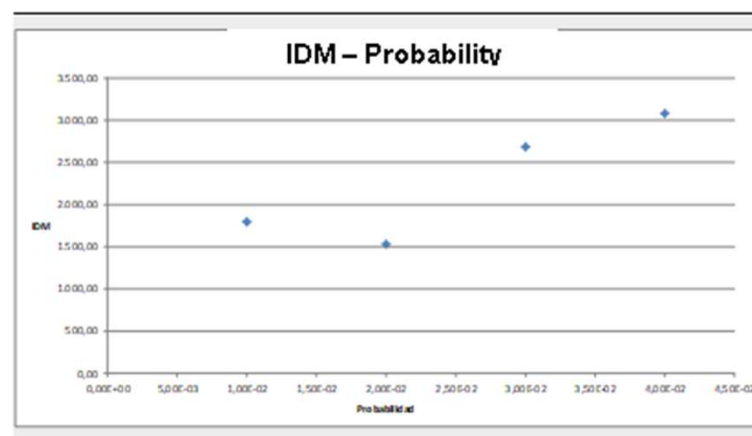
- Calculates **primary, compensatory and complementary remediation costs** of scenarios
- Primary remediation costs of the reference scenario = financial security (adding to it the costs of prevention and avoidance measures)
- Provides the **best available remediation techniques** to restore the resources damaged (and their services) to their baseline condition





ARM-IDM-MORA computer applications: ARM-IDM-MORA global project

- Projects that sequentially **incorporate all the phases of the ERA** in an assisted way through the ARM, IDM and MORA applications
- Provides with a very useful tool for implementing **risk management measures**:
 - Identification of accident scenarios with higher probability of occurrence / higher potential environmental damage
 - Simulate changes in their probability of occurrence or environmental consequences
 - Allows drafting **risk reduction plans, to deal gradually with them, starting with high risk, and study risk management measures costs vs benefits (example high risk – high cost)**





Law 26/2007 second pillar: MFS + ERA

Risk analysis and risk management



But normally, investing small amounts of money in risk management, eliminating risk scenarios or reducing their probability or consequences, avoids damages and saves large amounts of money in remediation costs.



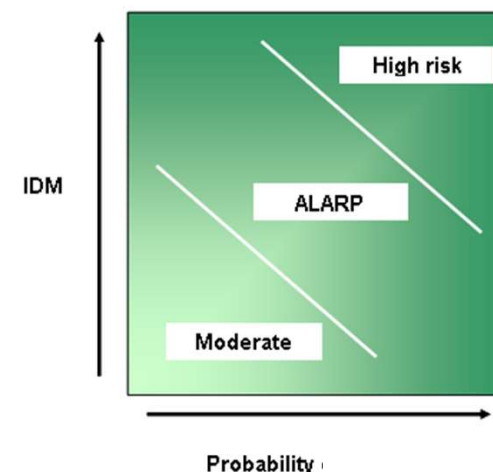
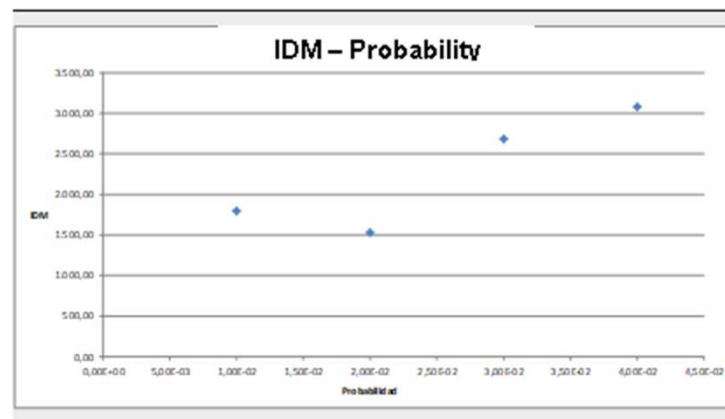
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Environmental Liability Supply Model (MORA)



ARM-IDM-MORA computer applications: ARM-IDM-MORA global project



Benefits of risk management plans for operators

• Cost effective

- Investing small amounts of money in risk management, eliminating risk scenarios or reducing their probability or consequences, saves large amount of money in remediation costs.

• Reputational benefits

- Corporate social responsibility.

Industrial sectors are increasingly aware of these benefits (study carried out in Spain)



CONCLUSIONS

ELD OBJECTIVES AND PRINCIPLES

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2. **Remedy such damage when it occurs**

Principles on which Directive 2004/35/EC is based on

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Elements necessary to take into account to evaluate Directive 2004/35/CE

1. Elements that allow the evaluation of the prevention of environmental damage objective
2. Elements that allow the evaluation of the remedying of environmental damage objective



CONCLUSIONS

ELD OBJECTIVES AND PRINCIPLES

Elements necessary to take into account to evaluate Directive 2004/35/CE

1. Elements that allow the evaluation of the prevention objective
 - **Fostering of environmental risk analysis and risk management measures linked to financial security:** reduce accidents that can cause environmental damage and/or limit their consequences.
 - Development of guidance documents, protocols and technical tools, implementation of information, dissemination and training actions.
 - Although their effect is difficult to quantify, all these measures have had a **significant preventive and deterrent effect** and have contributed to the compliance with the prevention of environmental damage objective.
2. Elements that allow the evaluation of the remedying of environmental damage
 - Cases of environmental damage processed; Mandatory financial security system. They guarantee the costs of the measures are borne by the operator liable.
 - In case of environmental damage the costs are not borne by society but transferred to the operator.

The evaluation of the Directive cannot be carried out taking into account only and exclusively information on the cases of environmental damage processed



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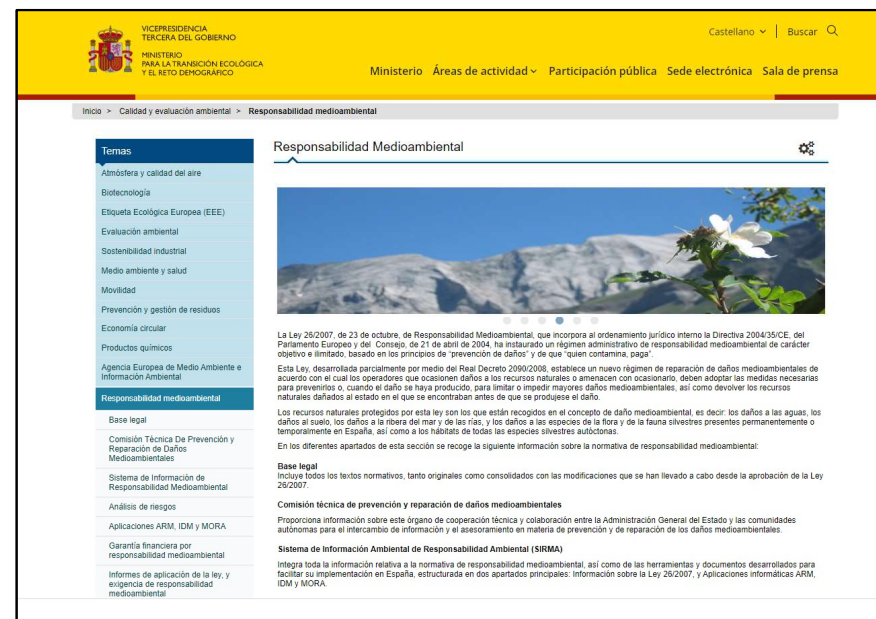


THANK YOU FOR YOUR ATTENTION!!

Isaac Sánchez Navarro
Technical Advisor

**Directorate-General of Environmental
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bnz-responsabilidadambiental@miteco.es