

Roadmap on hazardous waste and PCB/ PCB waste management

Spain

Member State	Spain	
Main recommendations		
<ol style="list-style-type: none"> 1. Transpose the ‘shared responsibility principle’ in national waste legislation and remove the option for hazardous waste producers to fully delegate responsibility for waste treatment to waste dealers 2. Strengthen the Coordination Commission for harmonising waste practices with the aim to <ol style="list-style-type: none"> 2.1. Publish a guidance document on harmonised classification approaches 2.2. Examine the current permitting practice in particular as regards waste dealers 2.3. Introduce an electronic record keeping mechanism applicable in all Autonomous Communities or with interfaces allowing the exchange/access of data for the competent authorities 2.4. Continue setting up a framework for waste-related inspections to foster a harmonised inspection approach centrally coordinated but locally implemented (inspection plans, guidelines, checklists, etc.) 3. Continue and harmonise the identification and elimination of PCB from ‘closed applications’ in all regions 4. Identify, prioritise and eliminate PCB waste streams from ‘open applications’ in a common approach in all regions 		
Overview of national hazardous waste (HW) management situation and problems		
Key facts on HW management	<ul style="list-style-type: none"> – According to Eurostat, in 2014 2,985 kt of HW were generated whereby 2,322 kt of HW were treated. – Classification of waste as ‘hazardous’ takes place in Spain on the basis of the European Waste Catalogue. Specifications of labelling are well implemented and used. Issues regarding misclassifications and labelling exist. – Any natural or legal persons registered at the Registry of production and waste management has the obligation to keep a record with quantities, nature, origin, destination, and treatment methods of waste. Records must be kept for 3 years. – All producers of hazardous waste must be registered in the National Waste Production and Management Registry. The HW transporters, waste operators/dealers and agents must also be registered in the registry. 	

	<ul style="list-style-type: none"> - Waste managers are not allowed to mix different HW, nor with other types of wastes, substances or materials, including dilution. Nonetheless, mixing may be allowed by the Regional Waste Production and Management authorities. - Inspection and control in industries and treatment facilities is carried out by competent bodies. The Spanish government is making efforts to harmonise practices creating a commission to coordinate waste policies implementation in the country.
Key facts on PCB management	<ul style="list-style-type: none"> - PCB thresholds were implemented and included in [ES PNDEPCB 2001]. It's the Autonomous Communities responsibility to resolve matters of authorisation, inspection and sanctioning. - Spain has a PCB guidance document, the [ES GPNPCB 2001]. It is a guidance manual to facilitate legislation application and development of the [ES PNDEPCB 2001]). The document is divided in 3 chapters. Each chapter is the answer to a basic question regarding PCB management
Most crucial HW management problems (excluding PCBs)	<ul style="list-style-type: none"> - The cross-cutting challenge for Spain is the harmonisation of waste legislation and its enforcement practices between the 17 Autonomous Regions. - At regional level HW classification can differ. The number of different competent bodies (17 competent bodies, one per region) in some cases causes a lack of harmonisation on waste management criteria (e.g. classification). Also, the waste producer is responsible for correct classification, labelling and packaging. Regions have the obligation to inspect and control producers and waste managers. However, there are not enough resources to establish this control. - Although most of regions have created electronic traceability systems, there is a lack of information exchange between them. As a consequence, traceability for cross regional shipments is hampered. - Permits for HW treatment facilities are issued by the Regional Waste Management Authorities. There is a lack of harmonisation regarding permits and respective criteria. - Inspections: Inspection and control in industries is carried out by competent bodies. The Spanish government is making efforts to harmonise practices creating a commission to coordinate waste policies implementation in the country. However, in cases related with municipalities (e.g. detection of HW in municipal or C&D wastes), the municipal police practically takes over the controlling part.
HW management problems with a specific focus on PCBs	<ul style="list-style-type: none"> - Ongoing identification and elimination of PCB from 'closed applications' - Identification and elimination of PCB from 'open applications' is not addressed sufficiently across all regions
Problems with HW data and traceability	<ul style="list-style-type: none"> - There is a 'negative' statistical gap between hazardous waste generation and treatment according to national statistics, i.e. the treated amounts are higher than the generated amounts which can be explained by intermediate treatment steps. However, when considering EUROSTAT data there is a positive gap of 26%, i.e. generated amounts are higher than the treated amounts.

Identified problems/obstacles on HW management and proposed measures (excluding PCBs)

Problem 1: Lack of harmonisation of waste legislation and enforcement practices across the Spanish regions

Description	Main reasons				
Although the challenges for Spain in hazardous waste management are displayed in separate problems in this document, the major challenges are closely interlinked and should be considered together. The underlying major challenge for all issues mentioned below is the lack of harmonisation of waste legislation and enforcement practice in the 17 Autonomous Communities, hereinafter referred to as regions.	<ul style="list-style-type: none"> • The 17 regions are acting independently to a certain extent as e.g. competency for enforcing waste legislation relies with the 17 regions. Thus, when referring to waste management practices in Spain, the practices in all the 17 regions need to be regarded. • The individual profiles and economic circumstances such as the available industry and infrastructure need to be considered for all of the 17 regions. In particular the economic crisis affected the 17 regions differently as it has brought a loss of jobs in public administration in some regions. Additionally, the overall political will on enforcing environmental duties is perceived to be low as industry shall not be restricted in order to foster economic growth and job creation. • The established Coordination Commission for waste, where the 17 competent authorities of the regions are represented, is in charge for harmonising the enforcement of waste legislation across the regions. However, the capacity of this institution is limited to a certain extent. 				
Measure to tackle problem 1	Type of instrument	Responsibility	Indicative time scale	Estimated costs	Available EU funds
Implement the “shared responsibility principle” into Spanish waste law. It should foster an auto regulation of the industry because the initial producer and all the downstream holders are responsible for proper treatment, so producers only assign waste management to companies they trust. For that reason, it is very common to audit waste management companies on behalf of the producers. The responsibility regime guarantees a better performance and allows that fewer resources are dedicated to inspection and control. On the other hand, the responsibility delegation among the actors leaves all the control and inspection activity to competent bodies.	Legal instrument, administrative instrument	MAPAMA	In the frame of revising Law 22/2011 to adapt to the amendments of the CE Package	Low	N/A
Strengthen the rights and capacity of the Coordination Commission for waste to further harmonize enforcement of hazardous waste legislation in Spain, particularly but not	Legal instrument, administrative instrument	MAPAMA	2018 onwards	Medium	N/A

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exclusively referring to classification, permitting, inspections and record keeping.					
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Good practice example from other EU MS

Good practice France: Shared responsibility in waste management

- Article 15 of Directive 2008/98/EC regulates responsibility for waste management: “Member States may specify the conditions of responsibility and decide in which cases the original producer is to retain responsibility for the whole treatment chain or in which cases the responsibility of the producer and the holder can be shared or delegated among the actors of the treatment chain.”
- Member States may further define in their legislation the shared responsibility regime among actors, where the waste producer still shares responsibility for the ultimate fate of the waste although the waste might be managed by intermediate actors. This fosters self-regulation of the industry, as the initial producer and all the downstream holders are responsible for the good treatment of the waste.
- In the case of France, the producer is responsible for the waste until the final treatment, even if there are intermediate actors (e.g. traders, dealers) (see Article L541-2). Additionally, the producer is responsible for the compliance of the chosen treatment with the waste hierarchy (Article L541-2-1). The control of the waste management chain is followed via a consignment note covering all movements from the initial waste producer to the final operator of the treatment. Penalties are laid down, on the one hand for the producer (Article L541-3) and on the other hand for all other actors involved in the management chain of the waste (Article L541-4), if the treatment is not achieved correctly. Additional duties for the producer are to provide necessary information to the downstream holders of the waste (Article L541-7-1) and to provide information and justification for the chosen treatment option to the competent authorities (Article L541-9).

Good practice Germany: Interlinkage of regional authorities on national level

- The so-called ‘Bund/Länder-Arbeitsgemeinschaft Abfall (LAGA)’ is a federal working group for waste in Germany. The working group was established in 1963 with the aim to secure a homogenous enforcement of waste legislation in Germany.
- To reach this aim, information and experience are regularly exchanged and discussed between the national (German Environmental Ministry) and regional level (Environmental Authorities of Federal States). Additionally, a close cooperation between the LAGA and relevant associations as well as other German institutions is ensured. In order to further develop laws and to represent Germany at the European and international level, the LAGA develops positions and suggestions. Regarding practical issues of waste management within the Federal States, the LAGA elaborates instruction/ information sheets and guidelines on aspects of waste management as e.g. waste classification, sampling or on general treatment of waste streams.
- The LAGA is a national organisation where representatives from the regional Federal States (environmental authorities/ ministries of the 16 Federal States) and from the National Environmental Ministry work together equally. Currently, the LAGA is further organised along three committees (Product Responsibility, Waste Law and Waste Engineering).
This approach is especially favourable in case that (hazardous) waste management is administered and enforced on regional level whereas the waste legislation is valid on national level.

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Problem 2: Classification of (hazardous) waste					
Description		Main reasons			
Accidental or deliberate misclassification occurs, i.e. it is assumed that a substantial amount of HW is classified as non-hazardous, leading to a lack of control possibilities for the authority and comparably low amounts of HW generation (and treatment) compared to other EU Member States.		<ul style="list-style-type: none"> • Entries of the List of Waste (in particular mirror entries) in practice can be interpreted widely. • Permits for waste treatment facilities are often issued for treatment of non-hazardous waste only, leaving a strong incentive for classification of waste as non-hazardous in case of mirror entries • Insufficient capacity building at producers in particularly missing small HW generators • No harmonised guidance framework on waste classification and related areas available for all 17 regions • Competent authorities do not constantly identify and address industry sectors with high likelihood of misclassification with targeted measures and inspections. 			
Measure to tackle problem 2	Type of instrument	Responsibility	Indicative time scale	Estimated costs	Available EU funds
<p>Ensure the execution of the already planned measures:</p> <p>A guidance document on classification will be published by MAPAMA in 2018</p> <p>A network of laboratories specialized in waste sampling and analysis will be established by MAPAMA in 2018</p> <p>The Coordination Commission for waste body will standardise criteria for waste classification across all 17 regions for several waste streams, starting with WEEE but other streams shall follow.</p>	Administrative instrument	MAPAMA and Coordination Commission for waste	From 2018 onwards	Medium	N/A
Good practice example from other EU MS					
Good practice EU: Guidance document on definition and classification of waste (to be published)					
<ul style="list-style-type: none"> • To provide assistance to actors in the field of (hazardous) waste management regarding the complex issue of the definition and classification of waste, a guidance document is envisaged to be published by the European Commission. • Although the EU document is not yet available, a study undertaken by the Commission in 2015 gathered and analysed information to assist the Commission in the preparation of such a guidance document. The report contains in particular information extracted from guidance documents already existing in individual Member States (e.g. in BE, DE, ES, UK) and information submitted by stakeholders within a dedicated public consultation undertaken in 2015 (see http://ec.europa.eu/environment/waste/studies/pdf/definition%20classification.pdf) 					
Good practice Flanders: OVAM's guidance document for waste classification					
<ul style="list-style-type: none"> • The regional authority in Flanders OVAM developed a guidance document for the classification of wastes; targeting holders, processors, and transporters of waste, as well as Flemish administrative 					

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bodies

- The document is available at: <http://www.ovam.be/sites/default/files/atoms/files/EURAL%20Handleiding.pdf>
- Support for guidance document development in the waste sector is provided by the European Commission website <http://ec.europa.eu/environment/waste/studies/index.htm>, in particular in the “Study to develop a guidance document on the definition and classification of waste (2015)”

Good practice UK: Support for actors in waste management with a guidance framework

- In the UK, a holistic support framework is provided for all involved actors (e.g. waste producers, waste treatment operators) in waste management. It includes, inter alia, support for the classification of hazardous waste.
- The official website of UK’s government provides a separate section dedicated to environmental management. Within the subsection ‘Waste’ (<https://www.gov.uk/topic/environmental-management/waste>) the respective governmental departments provide an extensive overview on different aspects in general waste management. The provided information is divided in different sections ranging from introductory guides to basic information on inter alia (hazardous) waste, waste movements, permits, licences, storage, treatment, end-of-waste and disposal. Additionally, information on separate waste streams such as batteries, WEEE, Packaging, waste water, radioactive waste and clinical waste is given.
- Each available section is further structured along the main aspects and contains the most important definitions, step-by-step explanations and answers to frequently asked questions. In many cases also a phone hotline is provided for direct communication with the respective UK Competent Authority to seek further advice (e.g. regarding classification of waste) or to report environmental incidents (e.g. fly tipping, littering, etc.). The technical guidance document (WM3) on the classification and assessment of waste should be separately mentioned in this context as it is seen as a helpful tool from actors in waste management inside and outside the UK.
- The online provided information is also tailored for the use of those actors involved in day-by-day waste management processes and recognizes the regional differences for England, Scotland, Wales and Northern Ireland.

Measure to tackle problem 2	Type of instrument	Responsibility	Indicative time scale	Estimated costs	Available EU funds
Introduce, educate and certify regional ‘waste advisors/waste classification experts’ as multipliers who bring information on correct classification from waste operators to waste producers	Administrative instrument	MAPAMA and competent authorities of the regions	From 2019 onwards	Medium	N/A

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Good practice example from EU MS**Good practice UK: Regional Waste Advisors**

- Installation, education and certification of 'waste advisors' together with the Chartered Institute of Waste Management with the aim that certified actors (dealers, brokers, carriers, etc.) act as multipliers of information on correct classification and bring information to waste producers of all size. There, education could be designed alongside the German concept of waste management officers (see below).

Good practice Brussels: Regional waste advisor providing a guidance document

The waste advisor in the Brussels region presents a good practice example. Nevertheless, the work can be extended in terms of awareness raising among HW producers to ensure understanding for HW and its treatment options.

- Since 2010, there is a waste advisor responsible for the Brussels region, who gives advice to enterprises on any kind of question related to waste management. The advisor works at Chamber of Commerce of Brussels and is paid by the Region.
- The advisor supports enterprises as well as public administration and associations on waste prevention and management and is in charge of a helpdesk (info@brusselswastenetwork.eu), the website www.brusselswastenetwork.eu, regular newsletters and the development of tools for e.g. the promotion of good practice projects, legal obligation information, round tables on specific problems, etc.
- The advisor has developed a comprehensive document about the main points of the legislation in waste classification (http://www.brusselswastenetwork.eu/wp-content/uploads/2013/11/IF_DECHET_tableau_obligation_legale_BWN.pdf?aa30c6) with a focus on selective sorting: sensitisation, how to start with the waste sorting, research for WEEE collectors or others specific waste.

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Problem 3: Traceability/Record keeping of (hazardous) waste

Description The current reporting for e.g. HW generation and treatment is done via different and mainly incompatible record keeping systems in the 17 regions. No common database exists on national level. Interlinked with the problem of misclassification, the current record keeping system(s) result in decreasing control possibilities for authorities and comparably poor data quality on HW generation and treatment.	Main reasons <ul style="list-style-type: none"> • Although there is a regulation on HW traceability on notational level, its application is not fully harmonized in all regions • 17 different record keeping systems limit the control possibilities for the competent authorities • Presence of intermediaries in the waste value chain – Tracking of a management chain for hazardous waste which is moved across several Spanish regions is not possible • Without a sound and recent overview of the treatment practice for different hazardous waste streams based on the kept record, the competent authority is not able to direct specific waste streams to specific treatment routes
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Measures to tackle problem 3	Type of instrument	Responsibility	Indicative time scale	Estimated costs	Available EU funds
Proceed the implementation of a national electronic record keeping system as planned for 2018 (ESIR system) aligning the different approaches in the 17 regions. It is recommended to implement a common approach/software as legally mandatory electronic record keeping system for producers, holders, collectors, transporters, brokers and dealers of hazardous waste managing ≥ 2t per year for Spain	Legal instrument, administrative instrument	MAPAMA and competent authorities of the regions	From 2018 onwards	High for CA during development and introduction phase, high for industry during introduction phase, Low for authorities and industry in routine phase	The Structural Reform Support Programme (SRSP), ISA ² programme

Good practice example from other EU MS

There are several electronic systems for hazardous waste management in operation or in a testing phase in different EU MS. The applied systems are quite diverse and it is difficult to present a certain system as best practice. It is recommended to consider the general summary and overview on electronic systems in hazardous waste management in the overall study's report where this roadmap is part of.

Problem 4: Permitting practice in particular with a view to waste dealers

Description	Main reasons				
<p>There is a concern that due to the activities of waste dealers, hazardous wastes are either mixed, classified as non-hazardous waste and/or ending in low quality treatment operations without any control by authorities or by the initial hazardous waste generators</p>	<ul style="list-style-type: none"> Article 17.8 of Law 22/2011 states that “the responsibility of the waste producers, when they do not carry out the waste treatment by themselves, ends when they are delivered to a dealer for waste treatment, or to an authorized facility for waste treatment, including intermediate storage facilities, provided that the delivery is documentary proof and is carried out in compliance with the legally required requirements established.” Hence, hazardous waste producers do not delegate responsibility for waste treatment to all the intermediates, but the responsibility for waste treatment is delegated to treatment facilities or dealers who are obliged to justify waste delivery to a treatment facility. As a practical consequence from this, stakeholders claim that hazardous waste treatment operations in Spain are auctioned like commodities, i.e. almost exclusively considering price instead of treatment quality Waste dealers in some regions do only need to register and do not need a permit. If they have to provide a bank guarantee this is usually too low to provide a serious disincentive for non-compliant dealers to register. Thus, the level of control is very low and the authorities do not have enough capacities to control registered waste brokers. Additionally, when a dealer gets an operating license/register from one Autonomous Community (region), is “authorized” to operate nationwide Hazardous waste producers have no interest in questioning the auctioned treatment operation (although the dealers need to prove the final treatment of the waste to the initial producer) as long as the price is low and the responsibility for the treatment of the waste relies with the waste dealer. 				
Measures to tackle problem 4	Type of instrument	Responsibility	Indicative time scale	Estimated costs	Available EU funds
<p>Ensure that the initial producers keep a share of responsibility for his waste until the final treatment and cannot fully delegate the responsibility to the dealer</p>	<p>Legal instrument</p>	<p>MAPAMA</p>	<p>In the frame of revising Law 22/2011 to adapt to the amendments of the CE Package</p>	<p>Low</p>	<p>N/A</p>
<p>Increase of control of waste dealers and quality of auctioned treatment operations</p>	<p>Administrative instrument</p>	<p>Competent authorities of the regions</p>	<p>From 2019/2020 onwards, effects of shared responsibility need to be assessed first</p>	<p>Medium/High</p>	<p>N/A</p>
<p>Change from registration to controlled permitting of waste dealers in all 17 regions</p>	<p>Administrative instrument, legal instrument</p>	<p>MAPAMA</p>	<p>From 2019/2020 onwards, effects of shared responsibility need to be assessed first</p>	<p>Medium/High</p>	<p>N/A</p>
Good practice example from other EU MS					
<p>See Problem 1 as regards the example of France on ‘shared responsibility in waste management’</p>					

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See Problem 5 as regards examples on environmental inspections by authorities.

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Problem 5: Harmonized enforcement of waste legislation in combination with limited capacity of all involved authorities

Description	Main reasons				
<p>Despite the existing approaches on inspection by the competent authorities of the 17 regions, still a lack of harmonized enforcement is recognised in hazardous waste management in Spain.</p>	<ul style="list-style-type: none"> • Impression was given that the economic crisis has brought a loss of jobs in public administration also hampering the available inspection capacities, additionally the overall political will on enforcing environmental duties is perceived to be low as industry shall not be restricted in order to foster economic growth and job creation. • Complaints on improper treatment often interfere with other interests of different authorities leading to difficulties for the environmental authorities to proper sentence and prosecute in compliant behaviour. The Spanish legal system makes it very difficult, resource intensive and time consuming to bring in compliant treatment to court to sanction on a criminal level. Nevertheless, the possibility of issuing fines, etc. based on the administrative rights is not used adequately and should be emphasised more • If complaints are submitted, in some regions the facilities are not closed. There is no political will to issue stronger consequences for in compliant behaviour. When facilities are, in fact, closed by authorities, a penalty fee for re-opening may be established. What happens in practice is that, sometimes, the penalty fee is not “adjusted” and is very easy for facilities to re-open. 				
Measures to tackle problem 5	Type of instrument	Responsibility	Indicative time scale	Estimated costs	Available EU funds
<p>Emphasise, implement and enforce the shared responsibility regime for hazardous waste management to foster self-regulation of the producing industry</p>	<p>Legal and administrative instrument (treatment chain involvement)</p>	<p>MAPAMA</p>	<p>In the frame of revising Law 22/2011 to adapt to the amendments of the CE Package</p>	<p>Medium</p>	<p>N/A</p>
<p>Strengthen the already established working group on waste-related inspections of the Coordination Commission in order to apply a harmonised approach towards hazardous waste treatment options for permits and in particular for effective and structured inspections with clear instructions and information to inspectors and companies about the mixing ban and possible derogations.</p>	<p>Administrative instrument</p>	<p>MAPAMA and Coordination Commission for waste</p>	<p>2018 onwards</p>	<p>Low</p>	<p>N/A</p>
<p>Extend the inspection plans for controls of waste shipments to all 17 regions which are already available in five regions since 2017</p>	<p>Administrative instrument</p>	<p>MAPAMA and Coordination Commission for waste</p>	<p>2019 onwards</p>	<p>Medium/High</p>	<p>N/A</p>

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Good practice example from other EU MS

See Problem 1 as regards the example of France on 'shared responsibility in waste management'

Good practice BG: Inspection activity of competent authorities

- To guarantee uniform procedures and structured inspections across the different systems, guidance plans together with a checklist were developed by the MoEW. The guidance plan provides the auditor with clear performance advises for the inspection and gives the possibility to the examined company to prepare for the requested information. The checklist guarantees that no issues will be forgotten during the audit. In this way it can be avoided that some companies are privileged or treated differently, since the scheme has to be adopted by every company, which in turn reduces also the number of complaints.
- First conducted reports showed positive results regarding compliance and implementation in the facilities and no higher workload for the inspectorate is observed

Good practice UK: Working groups reviewing waste data of specific waste streams to identify sectors with suspiciously low HW amounts, in conjunction with inspection campaigns

- Installation of working groups comprising representatives from the competent authority, the inspection body and other organisations across thematic fields (waste, emissions, chemicals, etc.)
- Review of datasets from different sources and reported under different legal regimes
 - national waste statistics on waste generation/treatment/import/export,
 - data on produced goods/imports/exports
 - EPRTR emission data
 - Corresponding data from "comparable" Member States
 - ...
- Objective to identify suspicious sectors where hazardous waste generation is comparably low
- Targeted information AND **inspection campaigns** for identified sectors

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Identified problems/obstacles on HW management and proposed measures with specific focus on PCB

Problem 6: Further identification and elimination of PCB from 'closed applications' is not sufficiently coordinated

Measures to tackle problem 6	Type of instrument	Responsibility	Indicative time scale	Estimated costs	Available EU funds
Description	Main reasons				
PCB management in Spain is focused mainly on closed applications where sufficient treatment facilities and expertise are present. Many/Most PCB containing equipment have been inventoried and/or eliminated. Although PCB from closed applications has been well-addressed in Spain, it is still suspected that some equipment containing PCB is not yet identified and inventoried and/or eliminated. Additionally, there is a need for harmonisation between the 17 regions.	<ul style="list-style-type: none"> • There is a need for harmonisation between the 17 regions. • Lack of methods to determine PCB contamination in particular equipment, e.g. transformers with sealed systems the assessment whether it contains PCB or not is very difficult. In particular if the equipment is still in use and crucial for e.g. energy supply. In the view of the deadline of the Stockholm Convention to eliminate all PCB containing equipment by 2025 this increases pressure on holders of equipment suspected to contain PCB to test and respectively eliminate the equipment despite the fact that the end-of life of the equipment has not yet been reached. 				
Establish a dialogue with holders of equipment containing PCB that has not yet been eliminated and with holders of equipment suspected to contain PCB to communicate the elimination deadline for PCB by 2025 from the Stockholm Convention and elaborate disposal plans on a case by case basis.	Administrative Instrument	MAPAMA and competent authorities of the regions	Until 2025	Low/Medium	N/A
Continue the search for equipment potentially containing PCB/ keep targeted campaigns.	Administrative Instrument	Competent authorities of the regions	Ongoing	Low	N/A
Elaborate harmonised guidance in the waste coordination body of the 17 regions to set up criteria for the elimination of equipment suspected to contain PCB (considering the criteria already used in the Basque Country using e.g. the production year of the equipment as	Administrative Instrument	Coordination Commission for waste and competent authorities of the regions	Ongoing	Low	N/A

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indication)					
Good practice example from other EU MS					
<p>Good practice CZ: Research, international cooperation and awareness raising by the RECETOX centre</p> <p>RECETOX, the Research Centre for Toxic Compounds in the Environment, is an independent department at the Faculty of Science, Masaryk University (Brno, CZ) that is active in research, development and education in the area of environmental contamination. Originally focusing purely on POPs, it now implements the BRS and Minamata Conventions as well as SAICM in the Czech Republic (http://www.recetox.muni.cz/index-en.php).</p> <p>Numerous activities on PCB and POPs are carried out by RECETOX. The long-term experience with PCB waste management gathered through the work of the centre is passed on to other countries within comprehensive international activities such as research projects, capacity building and training programmes all over the world (e.g. Europe, Kazakhstan, Ghana, India).</p> <p>Some of the major activities of RECETOX include research activities on national and international level, development and implementation of capacity building and training programmes on international level, development of guidelines and training materials and the organisation of conferences, excursions, contests, exhibitions, etc. for both experts and the general public.</p> <p>Regarding PCB, research, development, monitoring and cooperation activities were carried already since 2001. Key areas include sources and releases into the environment; presence, levels and trends in human health and the environment; environmental transport, fate and transformation, effects on human health and the environment, release reduction and/or elimination, harmonised methodologies for making inventories of generating sources, analytical techniques for the measurement of releases.</p> <p>Specific examples of the numerous RECETOX activities include:</p> <ul style="list-style-type: none"> • Hosting of the Stockholm Convention Regional Centre, providing support to Convention Parties in its geographical region. • In cooperation with the Institute of Biostatistics and Analyses at the Masaryk University, establishment of the Global Environmental Assessment Information System (GENASIS) in order to set up an expert system for contamination of the environment by chemicals – particular POPs. www.genasis.cz. • Research activities on national and international level, e.g.: <ul style="list-style-type: none"> • Since 2004, RECETOX scientists coordinated two FP5 projects, participated in three FP6 projects and implemented eight FP7 projects (isoSoil, ArcRisk, AquaRehab, EuroEcotox, TaToo, REFORM, DENAMIC and Solutions), and took part in one Marie Curie International Training Network for young scientists (CSI Environment). • Implementation of EU Interregional cooperation projects (MONAIRNET, SONДАР, NEEDLENET) and ICARUS project (ongoing) of the new European Framework Programme Horizon 2020. • Support to the European Initiative HBM4EU (The European Human Biomonitoring Initiative), aiming to create a European joint programme for monitoring and scientific assessment of human exposures to chemicals and potential health impacts in Europe (project is ongoing) • The ERA-PLANET "The European Network for Observing our Changing Planet" is a project aiming at strengthening the European Research Area in the domain of Earth Observation in coherence with the European participation to Group on Earth Observation (GEO) and the Copernicus. (project is ongoing) • Operation of several monitoring programmes, e.g. the international MONET (MONitoring NETworks) programme, aiming at the detection of environmental contaminants (toxic chemicals) in air, water, soil, and biota by passive sampling (www.monet.recetox.cz), or the European Longitudinal Study of Pregnancy and Childhood. • Public information and awareness raising measures (RECETOX international summer schools, capacity building workshop on POPs, mercury and hazardous waste, several conferences), including a number of dedicated portals supporting information exchange on the national level (www.genasis.cz; www.synergie-chemie.cz; www.monet.recetox.cz; www.recetox.muni.cz/NC) <p>Good practice UK: Active, intelligence-based supply chain investigation of the Chemical Compliance Team to identify PCB contaminations</p> <ul style="list-style-type: none"> • The UK Environment Agency's Chemical Compliance Team (CCT) aims at controlling chemical pollution at the source with an innovative approach to monitoring and enforcement. For PCBs, the target is to identify remaining PCB contaminations, raise awareness and maximise compliance. 					

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- CCT enforces PCB disposal, identifies illegal or misclassified items and actively approaches companies suspected to hold PCB contaminated equipment.
- Companies supposedly possessing PCB equipment are actively approached to investigate the presence of such equipment and identify acceptable disposal plans. Similarly, potential open uses of PCB or misclassified PCB waste disposal are identified using the Hazardous Waste Intelligence Database (HWID) and businesses are actively approached with the aim to identify and register remaining PCB contaminations.
- Through the active intervention by the CCT companies obtain information about a certain subject, have the possibility to react on altered circumstances (e.g. changes in legislation), fulfil their annual registration obligation and are compliant to the regulation.
- The active, intelligence-based approach led to 10 previously unregistered holders of PCB contaminated equipment with 108 holdings in 2014/15.
- CCT also de-registers equipment if a confirmation for the decontamination, transferral or disposal has been provided by the holder.

The CCT's work and achievements are summarised annually in a report, e.g. <https://www.gov.uk/government/publications/environment-agencys-chemical-compliance-team-annual-report-2012-to-2013>

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Problem 7: Identification and elimination of PCB from 'open applications' is not addressed

Description	Main reasons				
Open applications of PCB have not yet been systematically addressed in any of the Spanish regions.	<p>It was not yet assessed whether PCB from 'open applications' are of particular concern, i.e. there is no study examining the usage of PCB products in construction in Spanish buildings yet. Considering the experience in other MS; a high chance of PCB contaminations stemming from PCB usage in open applications has to be assumed. However, the following aspects prevent the development of a strategy addressing PCB from open applications:</p> <ul style="list-style-type: none"> ○ Limited knowledge on PCB contaminations/reservoirs in Spain and their origin ○ Limited knowledge on usage of PCB-containing materials in e.g. buildings and other open applications in Spain in the past ○ Addressing multiple waste streams (e.g. from C&D waste) with a particular strategy of e.g. source separation and elimination due to a suspected but not known PCB contamination entails high cost compared to potential benefits for the environment ○ Prioritization of waste streams/open applications known to be contaminated with PCB is necessary as a first step before an active strategy on elimination can be set up 				
Measures to tackle problem 7	Type of instrument	Responsibility	Indicative time scale	Estimated costs	Available EU funds
Extend knowledge base on PCB reservoirs/contamination in the environment (e.g. in sediments, biota, buildings, etc.)	Administrative instrument	MAPAMA and competent authorities of the regions	From 2019 onwards	Low	N/A
<p>Identify origin of PCB contaminations (i.e. PCB containing historic products) to verify the contribution of PCB from open applications to overall contamination levels and prioritise current/future waste streams to be targeted with further measures.</p> <p>Based on the general identification of PCB sources from open application, prioritise open applications (i.e. buildings) where PCB containing products have been used and the human exposure values (e.g. in room air) are highest (e.g. in public buildings from the 1960s and 70s).</p>	Administrative instrument	MAPAMA and competent authorities of the regions	From 2019/2020 onwards	Low	N/A
Good practice example from other EU MS					
Good Practice DE: Monitoring of POPs, POP candidates					
In the course of a research project on behalf of the German Environment Agency					

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(http://www.bmub.bund.de/fileadmin/Daten_BMU/Pool/Forschungsdatenbank/fkz_3715_65_423_pops_evaluierung_monitoringdaten_bf.pdf) the knowledge base of specific POPs and POP-candidates, particularly dl-PCBs and selected PCB substitutes, namely SCCP, PBDE and HBCD, was investigated and presented in detail for the substances and substance groups.

The interrelations between their sources, paths and sinks and their fate in the environment were discussed in order to comprehend their ubiquitous appearance as well as the mechanisms and paths of dispersal. The results will facilitate the identification of sources and causes of contamination, in particular of the environment, but also of food. Furthermore, the results will support a more rapid clarification of contamination causes and measures to reduce the risk of exposure to POPs and their substitutes.

Relevant federal state authorities and institutions were asked to provide data on dl-PCB, SCCP, PBDE and HBCD from monitoring programs that are appropriate for inclusion in the POP-Dioxins-Database of the German Federation and States within this project. The publications identified during the literature research were examined for appropriate measurement data and, as the case may be, the authors were asked for the original data. The focus was put on the technosphere, the air (ambient concentrations, deposition and emission) and plant biota. The data stock of the POP-Dioxins Database could be extended considerably. In total, data of around 1,800 samples were added.

In order to identify possible causes for contamination (sources or source processes) of environment samples, the method of pattern matching of substance profiles is commonly applied. In recent years specific statistical methods were developed to improve the so called "Composition Data-Statistics" (CoDa). Nevertheless, these methods have only been applied rarely. Within the scope of this project particular focus was put on testing the applicability of these methods on the basis of the available data of the POP-Dioxins-Database.

As regards the knowledge base on PCB reservoirs/contaminations in the environment and their origin, the aforementioned study already assessed about 70 publications from all over the world and may thus serve as first orientation for the work in the UK. The particular situation in Germany with regard to PCB contaminations in the environment from open applications can be summarized as follows: The main origin for PCB found in the atmosphere can be allocated to PCB from open applications such as joint sealers and other utilizations (paints and coatings), which to a large extent (about 50-80%) are still contained in buildings and structures and continuously emit PCB (7-12 tons/year). Also, emissions from unintentionally formed PCBs from combustion plants and other thermal sources contribute to the current PCB input to the environment. However, compared to the entries from open PCB applications, the relevance of these unintentionally formed PCBs can be considered as marginal (220 kg / year). In environmental matrices (soil, air and grass) almost exclusively congener profiles of industrially produced PCBs can be found. This provides evidence for the dominance of industrially produced PCBs as emission source and the low relevance of thermally formed PCBs (see also <https://www.umweltbundesamt.de/publikationen/analyse-trendabschaetzung-der-belastung-der-umwelt>).

Measures to tackle problem 7	Type of instrument	Responsibility	Indicative time scale	Estimated costs	Available EU funds
<p>Develop an official strategy focussing on prioritised PCB waste streams from open applications.</p> <p>Example: Start a harmonised pollution monitoring campaign on construction demolition waste in all 17 regions, considering the existing strategies in some regions as regards authorising of construction projects only if a pollutant monitoring is in place</p>	<p>Informative instrument, administrative instrument</p>	<p>MAPAMA and competent authorities of the regions</p>	<p>From 2020 onwards</p>	<p>Medium</p>	<p>N/A</p>

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Good practice example from other EU MS**Good Practice EU: EU Construction & Demolition Waste Management Protocol**

<http://ec.europa.eu/DocsRoom/documents/19741/attachments/1/translations/en/renditions/native>

The overall aim of this Protocol is to increase confidence in the C&D waste management process and the trust in the quality of C&D recycled materials. This will be achieved by:

- a) Improved waste identification, source separation and collection;
- b) Improved waste logistics;
- c) Improved waste processing;
- d) Quality management;
- e) Appropriate policy and framework conditions.

The protocol thereby also considers the identification and separation of hazardous C&D waste

Good Practice DK: Investigation and assessment of PCBs in buildings

<https://sbi.dk/anvisninger/Pages/241-Undersoegelse-og-vurdering-af-PCB-i-bygninger-2.aspx/>

This manual includes how to evaluate PCBs in buildings; it contains descriptions of the main elements of PCB renovation procedures, possible remediation processes, practical aspects of different methods and describes working environments and waste management. The purpose is to convey knowledge about the identification of PCB in buildings and to describe how to plan remediation. Current scientific knowledge and experiences from building experts form the informative basis of this work. However, the knowledge is not fully satisfying and several investigations and studies are to be performed in this field. Constructional experts, consultants and executives build the target group for this manual.

Good Practice DK: Guidance on the management of PCB-containing double glazing

<http://www2.mst.dk/Udgiv/publikationer/2014/03/978-87-93178-28-1.pdf>

This guideline provides information about PCB in building materials used mainly in the 50s, 60s and 70s. PCB was used in joint sealers at the edge of double glazing and for softening the sealing tape between the glass and the frame of the window. Furthermore, PCB containing sealant was applied in the gaps between the window shade and the wall, both inside and outside. Also between in the window frames PCB was found. This shows that the problem cannot be limited to double glazing but includes also the material that has been in contact with the adhesives and sealants containing PCBs. According to the waste order double glazing has to be collected separately but it is proven that the sorting is not sufficient to achieve the targeted sufficiency. Recently, also the handling of such contaminated waste can cause negative effects, which led the Danish Environmental Protection Agency force to pursue new studies in this area. These instructions focus on PCB containing double glazing used in windows and doors, as well as the handling of frames that have been in contact with sealants. It includes further background information for the main stakeholder groups.

Good Practice DE: Contaminated C&D waste – Exploration, Assessment, Treatment: Guidance on controlled ,unbuilding‘

https://www.lfu.bayern.de/abfall/schadstoffratgeber_gebaeuderueckbau/index.htm

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The “Pollutant Advisor Building Restructuring” is a free online information system in Bavaria to support the execution and to ensure a proper waste separation and disposal arising at building remediation. It contains a wealth of information on pollutant and non-pollutant materials. During the data collection it was tried to work with the greatest diligence, however due to the large number of building materials used and because of regional differences, the pollutant control system can never be complete. Furthermore, the inspection of the disposal routes and the decision to separate contaminated components in individual cases are subject to the competent authorities. This advisor is understood as a dynamically designed information system, which can be continually improved by users via supplementations, suggestions and corrections. There is a particular section targeting potential waste streams containing POPs and in particular PCB. Please note that there will be an updated version of this document available in 2018.

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