



INDUSTRIA EUROPEANA A CIMENTULUI PROVOCĂRI ALE SECOLULUI AL XXI-LEA[▲] EUROPEAN INDUSTRY OF CEMENT – CHALLENGES OF XXIst CENTURY

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Cement industry has to prepare its future in the context of European Union's stringent need for a long term vision. If the vision is missing, serious consequences may occur, as for example, the European Commission's failure in reaching a consensus with countries as Brazil, China, India, USA and many others, regarding reduction of global warming carbon emissions.

Major challenges which Cement industry from Europe must meet on future are mainly refer to:

- *Climate changes, that includes CO₂ allocation for the period 2013-2020, revision of list for vulnerable sectors at carbon leakage, roadmap for a low carbon economy by 2050, tax of CO₂ for energetic products, adaptation at climate changes, etc.*
- *Energy Efficiency Directive*
- *Implementation of Industrial Emissions Directive and of BATs (Best Available Technics)*
- *Implementation of Agreement regarding crystalline silica*
- *Sources efficiency and the access at raw materials and durable using of resources*
- *Biodiversity and Nature 2000*
- *Waste Framework Directive and also wastes management from constructions and demolishes*
- *REACH and CLP (classification, labeling and packing)*
- *Revision of the Directive SEVESO II*
- *Implementation of Regulation for construction products*
- *Revision of cement and concretes standard*
- *Environment Product Declaration*
- *Gamma radiations from building materials*
- *Mercury emissions*

Industria cimentului trebuie să-și pregătească viitorul în contextul în care Uniunea Europeană are nevoie stringentă de o viziune pe termen lung. Lipsa de viziune a UE s-a adeverit și în cazul schimbărilor climatice când Comisia Europeană nu a ajuns la un consens cu state ca Brazilia, China, India, USA și multe altele, privind reducerea emisiilor de carbon care contribuie la încălzirea globală.

Principalele provocări cărora industria cimentului din Europa trebuie să le facă față în viitor se referă, în principal, la:

- *Schimbările climatice, care includ alocările de CO₂ pentru perioada 2013-2020, revizuirea listei sectoarelor vulnerabile la relocare, foaia de parcurs pentru o economie cu emisii reduse de carbon până în 2050, taxa de CO₂ pentru produsele energetice, adaptarea la schimbările climatice, etc.*
- *Directiva eficienței energetice*
- *Implementarea Directivei emisiilor industriale și a BAT-urilor (Best Available Techniques)*
- *Implementarea Acordului privind silicea cristalină*
- *Eficiența resurselor și accesul la materiile prime precum și utilizarea durabilă a resurselor*
- *Biodiversitatea și Natura 2000*
- *Directiva cadru a deșeurilor precum și managementul deșeurilor din construcții și demolări*
- *REACH (înregistrarea, evaluarea și autorizarea substanțelor chimice) și CLP (clasificarea, etichetarea și ambalarea)*
- *Revizuirea Directivei SEVESO II*
- *Implementarea Regulamentului produselor pentru construcții*
- *Revizuirea standardului de ciment și betoane*
- *Declarația de mediu a produselor*
- *Radiațiile gama din materialele de construcții*
- *Emisiile de mercur*

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1. Introduction

At European level, cement manufacturers are joined in a representative association named CEMBUREAU- the European Cement Association.

CEMBUREAU has 27 full members (Austria, Belgium, Bulgaria, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Holland, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Switzerland, Turkey and Great Britain) and 1 associate member (Croatia).

CIROM had become associate member of

CEMBUREAU in the year 2002, and from July 2007, in the same time with European Union accession, it became possible to obtain the statute of Full Member.

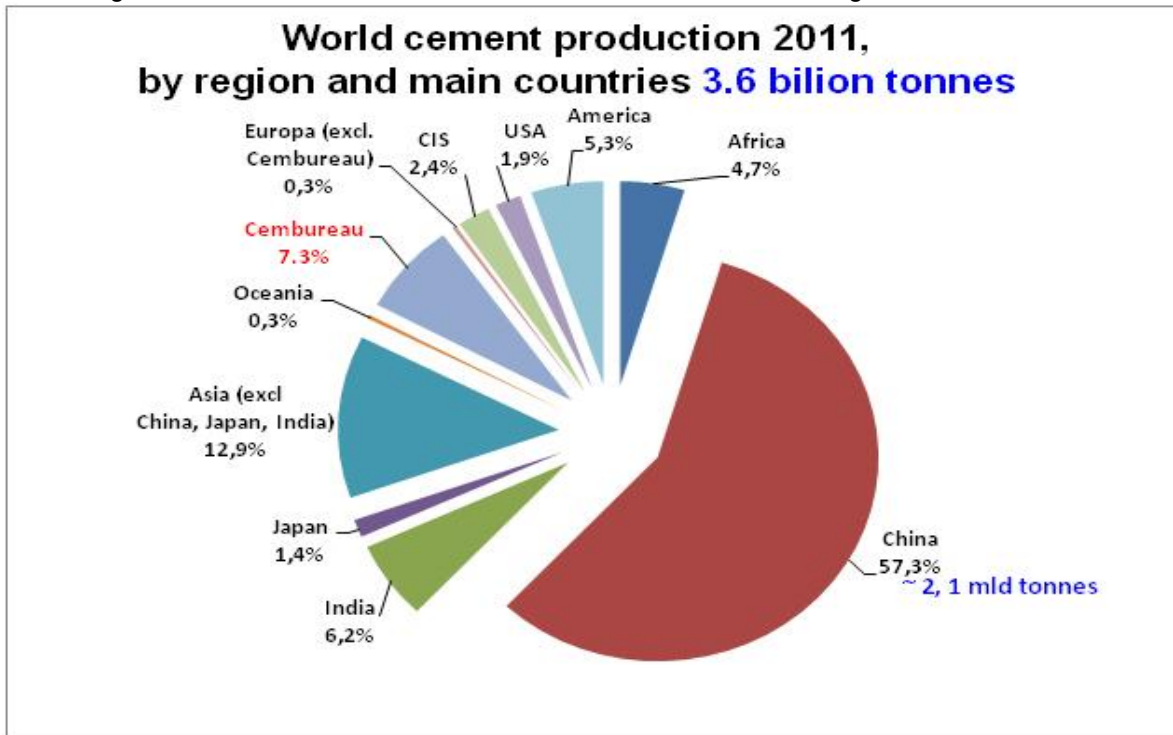
The association acts in its quality of speaker for cement industry in relation with the institutions of European Union and with other public authorities, communicating the industry points of view concerning technical, environmental and energy aspects. It maintains a permanent dialogue with the institutions of European Union, other international association and of course with its members – national association and cement independent companies.

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At worldwide level, cement production in the year 2011 is estimated at 3.6 milliards tones, increasing with 7.6 % compared with 2010 (Figure 1 and 2). China had registered an increasing of 9,6% reaching this way at a production of about 2,1 milliards tones, representing 57,3% from the worldwide production – Table 1. Significant increases were registered in Indonesia, Russian



Including EU27 countries not members of CEMBUREAU

Fig. 1 - World cement production by region and main countries (source: CEMBUREAU [1]) / Producția mondială de ciment în 2011, pe regiuni și principalele țări (sursa: CEMBUREAU [1]).

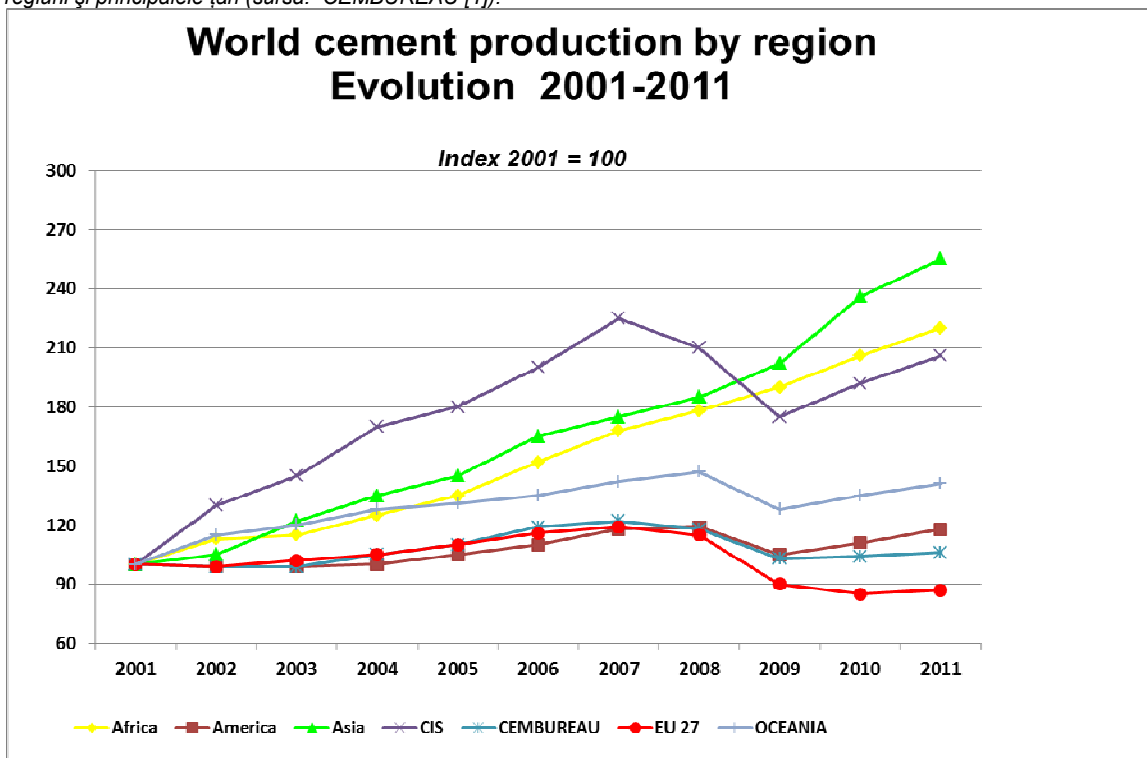


Fig 2 - World cement production by region 2001-2011 (source: CEMBUREAU [1]) / Producția mondială de ciment pe regiuni (sursa: CEMBUREAU [1]).

Table 1

Main world producers - The G-20 Group (source: CEMBUREAU [1])
 Principalii producători de ciment ai lumii - Grupul G – 20 (sursa: CEMBUREAU [1])

Country Țara	Cement production / Producția de ciment ° (million tones / milioane tone)							
	2001	2005	2006	2007	2008	2009	2010	2011
China	661.0	1068.8	1236.8	1361.2	1388.4	1644.0	1881.9	2063.2
India	102.9	142.7	159.0	170.5	183.3	186.9	213.9	223.5 e
European Union	225.9	248.0	264.8	271.0	251.7	201.5	190.9	195.3
USA	88.9	99.3	98.2	95.5	86.3	63.9	65.5	67.7
Brazil	39.4	42.8	47.4	49.3	51.4	54.0	59.1	63.9
Turkey	30.0	38.7	41.4	45.9	51.6	51.4 p	62.7	63.4
Russian Federation	28.7	68.7	69.9	67.8	63.0	54.9	50.4	56.1
Japan	75.9	48.7	54.7	59.9	53.5	44.3	51.7	51.5
Korea, Rep. of	52.0	47.2	49.2	52.2	51.7	50.1	47.4	48.3
Saudi Arabia	20.0	26.1	27.0	30.3	37.4	37.8	42.5 e	47.0 e
Indonesia	31.1	36.0	38.8	39.5	38.3	37.1	39.5	45.2
Mexico	30.8	33.9	33.0	35.0	38.5	36.9	38.9	39.8 e
Germany	32.1	46.4	47.8	47.4	43.0	36.3	29.9	33.5
Italy	39.8	31.2	32.9	32.3	32.5	30.0	34.4	33.1
France	19.1	20.9	22.0	22.1	21.2	18.3	18.0	19.4
Canada	12.1	13.5	14.3	15.1	13.7	11.0	12.4	12.3 e
Argentina	5.5	12.1	13.1	13.7	13.4	12.0	10.4	11.6
South Africa *	8.4	7.6	8.9	9.6	9.7	9.4	10.9	11.2
Australia	6.8	9.1	9.2	9.6	9.7	8.7	9.1	9.6 e
United Kingdom	11.9	11.6	12.1	12.6	10.5	7.8	7.9	8.3

° Cement production including cement produced with imported clinker

p: Preliminary - *: Estimation including cementitious - e: Estimation

° Producția de ciment incluzând și cimentul produs cu clincher din import

Notes: p: Preliminar - *: Estimat inclusiv cementitious - e: Estimat - c: Confidențial

Federation and Argentina reaching up to 14.6%, 11.3% and 11.2%, respectively [1].

Cement production from South America, Africa and Asia represent 3%, 5% and 78%, respectively from worldwide production. CEMBUREAU countries contribute with about 7% at worldwide production, while UE Member States-27 contributes with only 6% - Figure 3.

Total 2011 clinker and cement exports from the CEMBUREAU member countries fell by 11.6%, to about 45 million tonnes, whereas imports rose by 3.7%, to approximately 23 million tonnes (Figure 4).

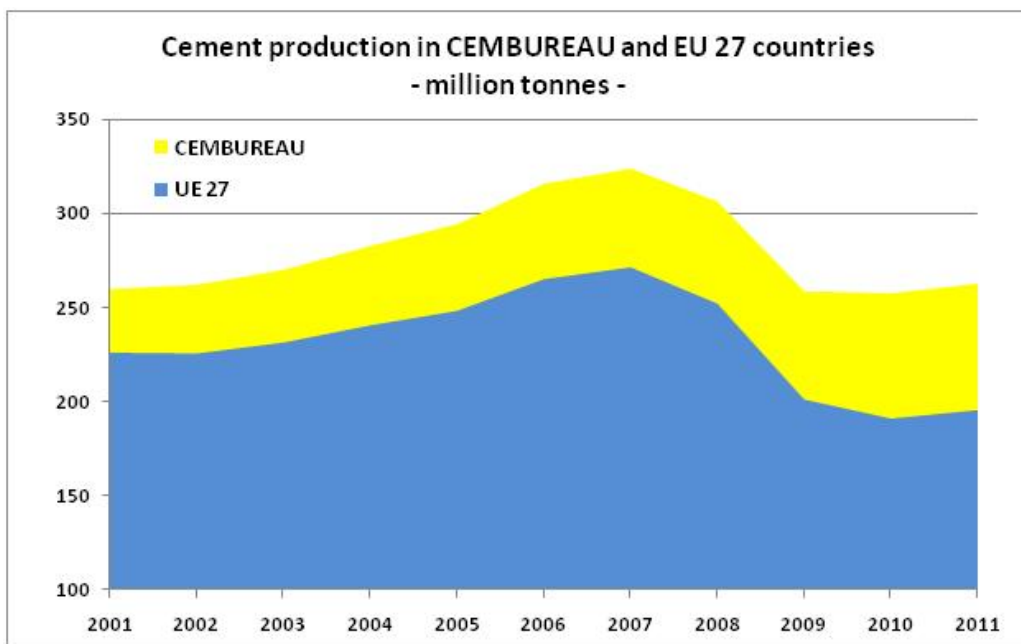
In the context of the future design of climate change and energy legislation, combined with the objective of a resource efficient society, the point of views of cement industry will prove to be of high value for policy makers.

The current policy is focused on durability and biodiversity, allowing cement industry to act in

a proactive and constructive way. In order to continue the activity in Europe, the cement industry needs a competitive environment, with an appropriate legal framework that ensures certitude and predictability for investments.

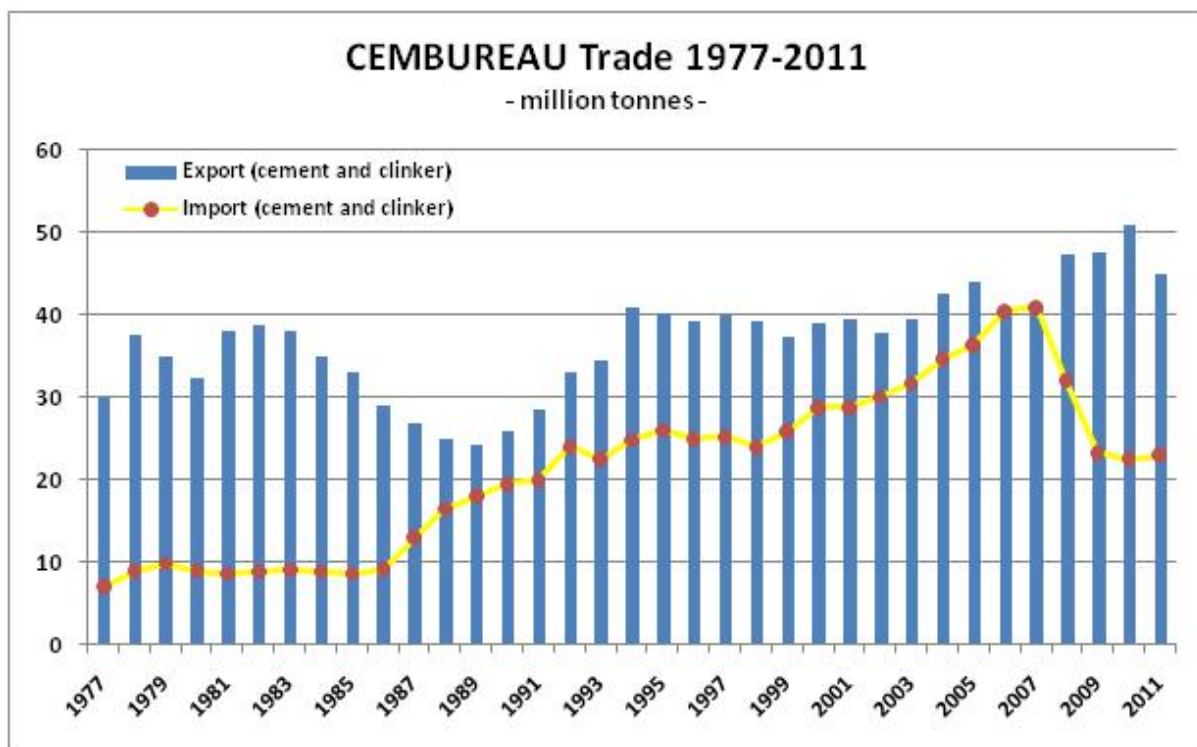
2. Climate changes and energy

EU-ETS Directive regarding CO₂ emissions trading [2] represents one of the most important tools of European Union in the fight against climate changes. Starting from what has worked and what has not under the current EU-ETS actual legislation, European cement industry will have to bring its contribution at creation of a regulatory frame able to assure reaching of the objectives regarding climate changes, in a way that promote the innovation and technological development, whilst maintaining the competitiveness of the sector. Consequently, the activities will be focused



Note: Cement production includes cement produced with imported clinker.
 Notă: Producția de ciment include și cimentul produs cu clincher importat.

Fig. 3 - Cement production in CEMBUREAU and EU 27 countries (source: CEMBUREAU [1]) / Producția de ciment în CEMBUREAU și UE 27 (sursa: CEMBUREAU [1]).



Note: Exports and imports including intra-trade flows between CEMBUREAU countries
 Notă: Exporturile și importurile includ și comercializarea dintre țările CEMBUREAU

Fig. 4 - CEMBUREAU trade 1977-2011 (source: CEMBUREAU [1]) / Import- Export CEMBUREAU 1977-2011 (sursa: CEMBUREAU [1]).

on actual and future initiatives, with the aim of providing a legal certainty until 2020, because for cement industry, as a sector in which the investments are very big and planned on a big period of time, the necessity of predictability is especially stringent.

In the year 2014, European Commission will have to **review the list of carbon leakage list**. In the year 2009, cement sector was recognized as a sector exposed to relocation and thus, the industry has to demonstrate that also in the actual conditions, the sector will keep the eligibility in order to qualify as sector with signi-

ficant risk for relocation. Otherwise, the result will be loosing of competitiveness, leading to a vulnerability of cement industry to imports from outside European Union, from countries where there are no restrictions related to CO₂ emissions.

Another subject of interest is represented by the “**Roadmap for a low carbon economy by 2050**”[3]. In European Commission’ intention the emissions in the year 2050 have to be lower with at least 80% compared to the emissions from 1990. European Cement industry actively participated within public consultation of stakeholders and sent to the Commission its proposals. In the next period the following of the roadmap will be necessary, in order to be sure that the proposed measures for CO₂ emissions reduction are technically feasible and may be performed in an efficient manner.

Due to the fact that legislative provisions regarding climate changes and energy are more and more connected, CEMBUREAU will continue the monitoring of **Energy Efficiency Directive** [4] and the **Directive regarding the taxation of energetic products** [5] in order to be sure that our industry will not be double charged.

3. Industrial Emissions Directive and BAT Conclusions

Industrial Emissions Directive [6] (ex IPPC Directive [7] plus Incineration Directive [8] and other 5 Directives [9-13]) will have to be transposed in national legislation until the 7th of January 2013.

One from the highest challenges introduced by this Directive is related to NO_x emissions, which have to reach the value of 500mg/Nm³.

Also in 2013, European Commission will have to approve **BAT Conclusions** which will serve as reference for establishing permit conditions and competent authority will establish emission limit values, based on the provision of BAT Conclusions [14].

In four years time after BAT Conclusions’ publication, competent authority takes all the measures to have all the permit conditions re-examined and all installations comply with the requirements.

4. Durability and Resource Efficiency

EU initiative for a **Resource Efficient Europe**, within Europe Strategy 2020 [15], promotes advancing to a sustainable development based on efficient use of resources and a low carbon economy. In its Roadmap for an efficient Europe the European Commission [16] seeks to decouple economy growth from resources use through the sustainable management of environmental resources, greater reuse, recycling and substitution of materials and resource saving.

In this way, European cement industry has

the opportunity to promote waste co-processing in cement plants as an optimal way of recovering energy and material from waste. In the next years, CEMBUREAU activities will be focused on reviewing **Waste Framework Directive** [17] and involving in elaboration **BREF** (Reference Document on Best Available Techniques for the) **for wastes treatment**.

5. Health and Safety

In 2006 „European agreement for social dialogue regarding respirable crystalline silica – ESDA” [18], was signed by European employers and representatives of employees from 17 industrial sectors (cement, aggregates, ceramics, glass, fine ceramics, mineral wool, industrial and metallic ores, mortars, concrete precast industry). The scope of ESDA Agreement is to protect workers’ health, to minimize exposure to respirable crystalline silica by application of Good Working Practices and improving the knowledge regarding Good Working Practices and potential effects of inspiring the dust of crystalline silica.

Although ESDA Agreement results are very good, European Commission intends to introduce limit value for professional exposure to respirable crystalline silica within **Carcinogenic Substances Directive** that will involve in future more measures/actions from employer’s part.

REACH (Registration, Estimation and Authorization of Chemicals [19]) implementation will always remain a priority for European cement industry in order to fulfill the obligations resulting from this legislation in a continuous change

6. Biodiversity and Nature 2000

In 2011, European Commission elaborated **the Strategy concerning biodiversity for 2020** [20], which includes six objectives in an interdependence and complementarity relation, subordinated to the main objective for 2020. All these will contribute to stopping the biodiversity loss and of natural eco-systems damage.

Cement industry will be in charge with monitoring the Roadmap development in order to reach these objectives and also will monitor very carefully the areas where it develops its activity.

7. Sustainable constructions

The **Roadmap to an Energy Efficiency Europe** [21] mentions that until 2020, renovation and construction of buildings and infrastructures will be performed in an efficient way in terms of resources use. The life cycle approach will be used on large scale; all new buildings will have energy consumption almost equal to zero and will be built with very efficient materials. Policy for renovation

will be functional, so that the existing edilitary patrimony will be reconditioned in rentable way, in a rhythm of 2% on year. 70% from non-hazardous wastes from constructions and demolitions will be recycled.

Regarding future regulation activity, CEMBUREAU will have to communicate in a very efficient way the benefits brought by concrete constructions to whole society and to give technical assistance at elaboration of the standards reflecting adequately the characteristics of our products.

At European level works are done to review the standard “**EN 206-1- Concrete Part 1: Specification, performance, production and conformity**”[22] and it is estimated that at the end of the year 2013 it will be published in the official journal.

Another challenge refers to EURATOM Directive [23]– regarding basic safety norms and extending of the range and application in order to readjust **exposure of population at natural radiations**. The new recommendations of International Commission of Radiologic Protection will make possible a more coherent management of exposure at natural sources of radiations, defining reference levels for radon concentrations in houses and for external exposure caused by building materials.

In the same time, at international level works are done on **mercury emissions** inventory and establishing of the methods and technologies for their reduction.

Consequently, European cement industry and implicitly Romania, will have to put all efforts in order to remain competitive and for this an appropriate legal framework that ensures certitude and predictability is necessary.

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