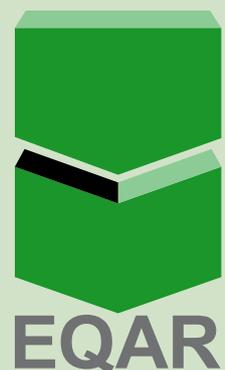




Recycling of building materials for environmental and resources protection

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Recycling of building materials – for nature and climate

The global environmental situation

In the 21st century our planet faces new global and ecological challenges. Until 2025 the world population will increase to approx. 8 billion people according to estimates of UNO [1].

The rapid growth of the world population is accompanied by a progressive increase of the consumption of resources.

In the „Living-Report“ [2] of WWF it is pointed to the fact that the ecological footprint of mankind describing the relationship between use of natural resources and biocapacity of our planet has increased from 50 % in 1960 to 130 % in 2009. In other words: mankind lives beyond its means destroying its own basis of life at a growing speed.

The global warming threatening due to an uncontrolled CO₂ output shows also the problems associated with an unhindered consumption of resources. The target of climate protection to limit the global warming to maximally 2°C adopted by the heads of states and governments in Copenhagen in 2009 may be only reached by a changeover from the presently resource-intensive world economy to a largely CO₂ neutral recycling economy.



Protection of resources required

When considering the global consumption of resources big differences are to be detected between industrial states and developing countries.

According to data published by the European Environment Agency [3] the consumption of primary materials amounts to about 15-16 tons per person and year in the 15 EU member states. However, this consumption differs strongly with the Federal Environmental Agency [4] giving a per capita consumption of primary materials of approx. 52 tons in 2004. This consumption of materials adds to the pollution of the environment in Europe as well as in other regions of the world. Here, a too intensive use of the renewable resources (as explained by the ecological footprint [2]), the rising emissions in water, air and soil and the production of big quantities of waste play a major part.



Apart from this, already in the foreseeable future an exhaustion of resources also in the field of non-renewable resources may result in bottlenecks in industrial production. The European Commission and the Conference of Ministers responsible for European Planning demanded the protection of the biodiversity and natural and man-made landscapes in Europe in the “Directive Natura 2000” [5]

and the „Guiding Principles for a Sustainable Development of the European Continent” [6]. This means that in future it will no longer be allowed to destroy interconnected undisturbed landscape areas by the extraction of primary raw materials. Considering these instructions relating to environmental protection in prospect also a shortage of primary raw material deposits is threatening.

In 2006 the Council of the European Parliament requested to improve the efficiency of resources to reduce the total consumption of non-renewable natural resources and the adverse effects on environment connected with it in the EU Sustainable Development Strategy [7]. Thus, renewable natural resources shall be only used to an extent not exceeding their regeneration capacity.

For all these reasons a fast reorganization of the European economy in the sense of a recycling economy will be indispensable and is a declared aim of the European Union.

Waste produced in Europe

One third of the resources consumed is converted into waste and emissions according to data quoted by the European Environment Agency. In the member states of the European Union approximately 4 t of waste per person are produced a year.

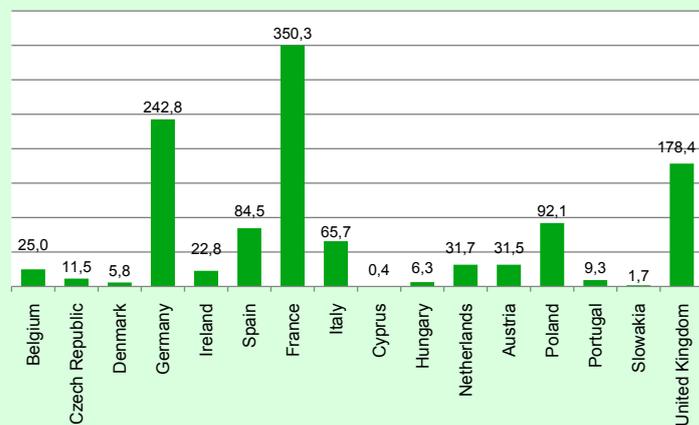
The biggest volume of waste in Europe is produced by construction and demolition work. According to information given by the European Statistical Office EUROSTAT 48 % of the waste produced fall to construction and demolition work and further 15 % of the waste produced come from mining and stone and earth extraction in the 15 EU states.



Thus, altogether approx. two thirds of the waste are produced in the fields of construction, demolition, mining and extraction of stones and earths. This waste consists predominantly of mineral waste. On the basis of the total waste produced a year in the 25 EU and EFTA states estimated to 1750 to 1900 million



bn. tons Waste accumulation, minerally (2006)



tons the volume produced in the domain of mineral waste may be estimated to more than 900 million tons a year.

An ecologically favourable dumping of this huge quantity of mineral waste seems to be scarcely possible. In addition dumping is frequently connected with transporting of mineral wastes over longer distances which means not only a strain on the transport infrastructure but is also connected with a not insignificant emission of CO₂.

European targets of environmental protection

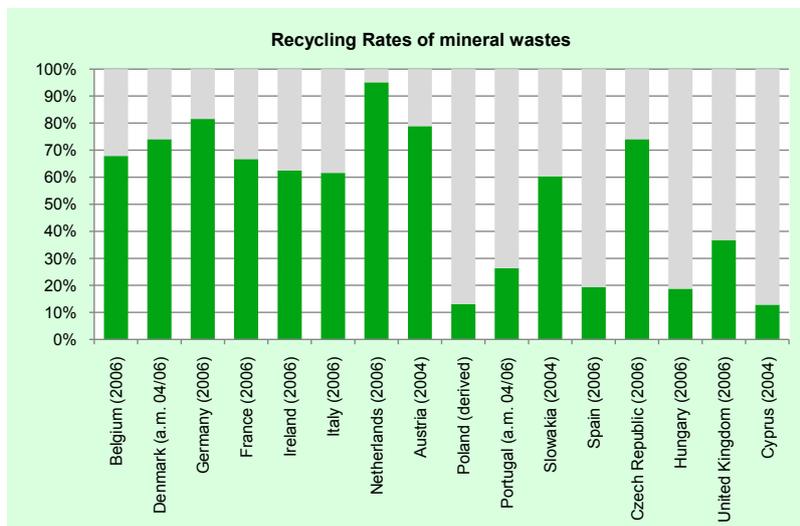
To reach the targets of climate protection, to reduce environmental pollution and to ensure a sustainable economic development the European Union strives for reforming the European economy into a recycling economy. In the Directive Natura 2000 the European Commission requests the protection of the biodiversity with a restriction of the intensive use of landscape being conceded as a priority.

To avoid waste the European Union laid down binding recycling quota for the member states of the European Union in the amended EU Waste Framework Directive which entered into force in 2010. The recycling quota for construction and demolition waste is on average to be increased to 70 % of the waste produced until 2020. It is the aim to produce high-quality construction products of construction waste in the sense of a closed cycle.

Recycling is indispensable

The European states are requested to promote the use of recycled building materials to ensure a minimum recycling quota of 70 % for mineral building waste. Thus, environment will be protected in multiple respects. On the one hand, the use of landscape will go down by reducing dumping areas, on the other hand high-quality recycled building materials will be an equally good substitute for natural building materials, thus contributing to a protection of landscape by reducing extraction areas and pits respectively.

By recycling building materials on site or in the nearer region big quantities of CO₂ are saved which otherwise would be released by removing waste and supplying natural building materials frequently over long distances. Thus, recycling of building materials



may also pay a remarkable contribution to climate protection.

All these advantages may be financially assessed and will result in a further advantage of cost reduction which is not to be underestimated. In particular, in the present economic crisis a reduction of costs is a compelling task for the financial manager of each commune or city who thinks in a consciously sustainable way.

Recycling as a sustainable economic segment

Sustainable management means reaching a qualitative growth without polluting the environment. No other branch of economy recycling of building materials combines economic growth with environmental protection. Recycling of building materials creates workplaces. According to estimates around 50,000 workplaces are created or secured by consistently separating residual building masses and recycling of mineral waste at a scale of 900 million tons a year in Europe.



The cost advantages connected with the use of recycled building materials as against the use of natural building materials in the framework of infrastructural measures are to be regarded as a further positive effect on national economy. Recycling of waste covering notably in large transport projects such as e.g. renewing of trunk roads and motorways represents the by far most economic and unique ecologically acceptable solution.

EQAR – Engagement for the quality of recycled building materials

The fields of application of recycled building materials are wide-ranging. So far recycled building materials have been used in the construction of roads and sports grounds, parking areas, for noise protection walls, earth banks and in landscape construction. Yet, they are also increasingly used as aggregates in the concrete and stone production.

By controlling the quality of recycled building materials on the basis of technological test criteria a high quality and an excellent suitability of them are ensured. The issues of soil and drinking water protection are, of course, also considered.

In 1998 pollution limits for drinking water requiring a respective protection of groundwater were fixed in the EU Drinking Water Directive.

Against this background only quality-assured recycled building materials which were checked for their environmental compatibility may be used in road construction and civil engineering. EQAR supports a high quality of quality-controlled recycled building materials in the sense of environmental and resources protection.

The longstanding experience and high competence of our European member associations and companies are concentrated in EQAR.

EQAR aims at promoting and spreading a high-quality processing of waste into recycled building materials in the sense of the environment. We shall be pleased to inform and advise you on all problems associated with recycling of building materials.

EQAR awards the EQAR quality label for a quality control system in conformity with the EQAR Quality Directive to their national member associations and companies:





stone chips 8/16



mixed rubble 16/56



crashed concrete 16/32



mixed rubble 0/22

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- [4] Federal Environmental Agency/Wuppertal Institut für Klima, Umwelt, Energie GmbH (Wuppertal Institute for Climate, Environment, Energy Ltd.), „Ressourcenverbrauch von Deutschland – aktuelle Kennzahlen und Begriffsbestimmungen“ („Use of resources in Germany – actual indices and definitions“), <http://www.umweltbundesamt.de>, February 2008
- [5] European Parliament and European Council, Directive 92 / 43 / EWG „Natürliche Lebensräume (Natura 2000)“, datiert vom 21.05.1992 (EEC „Natural habitats (Natura 2000)“, dated 05/21/1992)
- [6] European Conference of Ministers responsible for Regional Planning (CEMAT), „Leitlinien für eine nachhaltige Entwicklung auf dem europäischen Kontinent“, datiert vom 7./8.09.2000 (Guiding Principles for a Sustainable Development of the European Continent, dated 05/21/1992)
- [7] EU-Strategiepapier für eine nachhaltige Entwicklung (Sustainable Development Strategy)
- [8] Statistisches Bundesamt, „Abfallaufkommen (einschließlich gefährlicher Abfälle)“, <http://www.destatis.de>, 2008 (Federal Statistical Office: „Quantity of waste (including hazardous waste“)

EQAR supports a sustainable and ecological substance cycle in the areas of a recycling economy.

EQAR promotes the production of high-quality, quality-controlled recycled building materials of mineral waste.

EQAR supports environmental, resources and landscape protection by recycling building materials.

EQAR stands for a high quality of recycled building materials.

EQAR regards itself as a lobbyist for recycling building materials and stands up for political, economic and legal basic conditions promoting the recycling economy.

EQAR claims responsibility for the quality of recycled products.

EQAR regards itself as the central European platform for the recycling economy in construction.

EQAR is the contact for recycling of building materials for the European Commission and European bodies.

EQAR

„Engagement for quality of recycling of building materials“

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