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Abstract: The majority of worldwide structures use concrete as its main material. This happens because concrete is economically feasible, due to its undemanding production technology and ease of use. However, it is widely recognized that concrete production has a strong environmental impact in the planet. Natural aggregates use is one of the most important problems of concrete production nowadays, since they are obtained from limited, and in some countries scarce, resources. In Portugal, although there are enough stone quarries to cover coarse aggregates needs for several more years, Supplies of fine aggregates are becoming scarcer, especially in the northern part of the country. On the other hand, as concrete structures' life cycle comes to an end, an urgent need emerges to establish technically and economically viable solutions for demolition debris, other than for use as road base and quarry fill. This paper presents a partial life cycle assessment (LCA) of concrete made with fine recycled concrete aggregates performed with EcoConcrete tool. EcoConcrete is a tailor-made, interactive, learning and communications tool promoted by the Joint Project Group (JPG) on the LCA of concrete, to qualify and quantify the overall environment impact of concrete products. It consists of an interactive Excel-spreadsheet in which several environmental inputs (material quantities, distances from origin to production Site, production processes) and outputs (material, energy, emissions to air, water, soil or waste) are collected in a life cycle inventory, and are then processed to determine the environmental impact (assessment) of the analysed concrete, in terms of ozone layer depletion, smog or "greenhouse" effect.

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