
Title: Sustainability research in sewage pipes

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ABSTRACT

Nowadays, the sustainability concept is present in any activity that surrounds us. Sustainability and development must go hand in hand, however, and due to the relative novelty of the concept, it is difficult to know in a reliably and rigorously sense how much sustainable a product is compared with the others. The aim of the research is the description of a methodology to be followed in order to be able to assess the sewage pipe's sustainability.

Sustainability or sustainable development is a generic concept. In the Rio Declaration (1992) it is defined as "*The development that meets the needs of the present generations without compromising the ability of future generations to meet their own needs*". In this work, it is previously defined the sustainability concept within 4 elemental levels: economical, environmental, social and functional. The last one is associated with the added value that an alternative has beside the others, assuming that all of them meet the already established requirements.

First of all and once narrowed the sustainability concept, we performed the participatory processes to meet the administration's opinion in first person (it is their decision to choose between a typology or another) and the expert's opinion in the subject. After several shots contacts and the seminar on November 14, we accorded the tree requirements. Starting with the 4 aforementioned requirements, we obtain 10 criteria of whom were born 17 indicators (4 of them identify themselves as economic costs and could be counted as one)

Once described the last items, we detailed a study of the sector (studies, uses alternatives, trends, policies...). The sewage pipes field has evolved severely in recent decades, introducing a wide range of materials and typologies, from the most traditional (concrete pipes, PVC...) to the most innovative (PRFV, structured PE...)

Once defined sustainability, understood the sewage piping field and the tree decision-making is harmonised, we will associate to each indicator a function value. With this, for each alternative and indicator, we must obtain a value between 0 and 1 as it is described in the MIVES methodology. Thus, for the 14 indicators (with different properties) that have the tree requirements, it will be possible for each of the proposed alternatives an assessment. We just add apples with pears.

In the last part of the study we have some recommendations to obtain the results. It is proposed a strategy to obtain the results, the difficulties that we can find within the sources, the importance that these should be fair, clear, reliable and have clear and explicit limits.

The main conclusions are the importance of the participatory process in developing the tree and values through attributes and the use of fair, clear and contrasted sources to adopt a comprehensive concept of sustainability by defining its limits.