



The title (العنوان):

Application of Data Envelopment Analysis to Assess and Improve Efficiencies of Activated Sludge Treatment Plants

The paper document Shelf mark P21-27 :(paper version not available)

APA Citation (APA توثيق):

Kellouche Abdelhakim, Abdelbaki Chérifa, Bessedik Madani, Mihoubi Mustapha Kamel et all(2021). Application of Data Envelopment Analysis to Assess and Improve Efficiencies of Activated Sludge Treatment Plants . *International Journal of Water Resources and Arid Environments*, vol 11(n°2), p. 12672 . DOI ou URL : [https://psiewdr.org/article/11\(2\)22/11\(2\)%203.pdf](https://psiewdr.org/article/11(2)22/11(2)%203.pdf)

The digital repository of the Higher National School for Hydraulics "Digital Repository of ENSH" is a platform for valuing the scientific production of the school's teachers and researchers.

Digital Repository of ENSH aims to limit scientific production, whether published or unpublished (theses, pedagogical publications, periodical articles, books...) and broadcasting it online.

Digital Repository of ENSH is built on the open DSpace software platform and is managed by the Library of the National Higher School for Hydraulics. <http://dspace.ensh.dz/jspui/>

المستودع الرقمي للمدرسة الوطنية العليا للري هو منصة خاصة بتقييم لإنتاج
أساتذة باحثي المدرسة.

يهدف المستودع الرقمي للمدرسة إلى حصر الإنتاج العلمي سواء كان منشورا أو غير منشور
(طروحات بيداغوجية، مقالات الدوريات، كتب...) بثه على الخط.

المستودع الرقمي للمدرسة مبني على المنصة المفتوحة DSpace و يتم إدارته من طرف مديرية
المكتبة للمدرسة العليا .

Abstract: The aim of the investigation was to apply data envelopment analysis to assess and improve the efficiencies of activated sludge treatment plants using a case study from Algeria. The treatment capacities of 35 plants were analyzed and then a determination was made if they operated at their optimal sizes. Based on the wastewater treatment plants (WWTPs) examined, the Data Envelopment Analysis (DEA) method showed that 94% of the plants did not operate at their optimal sizes (i.e., efficiency scores less than 1). This indicated they were inefficient from a treatment capacity point of view and may reflect poor management, due possibly to a deficiency in knowledge about the best operating conditions. The DEA analysis indicated that smaller WWTPs were more efficient (i.e., scores closer to 1) compared to larger ones. This should encourage decision-makers to choose for the construction of small or medium-sized WWTPs that are more manageable and can be operated at their optimal size.

Key words: Wastewater treatment plants ; Activated sludge ; Pollution load ; Purification capacity ; Data envelope analysis ; Efficiency ; Optimal size ; Capacity

Available from : [https://psiewdr.org/article/11\(2\)22/11\(2\)%203.pdf](https://psiewdr.org/article/11(2)22/11(2)%203.pdf)