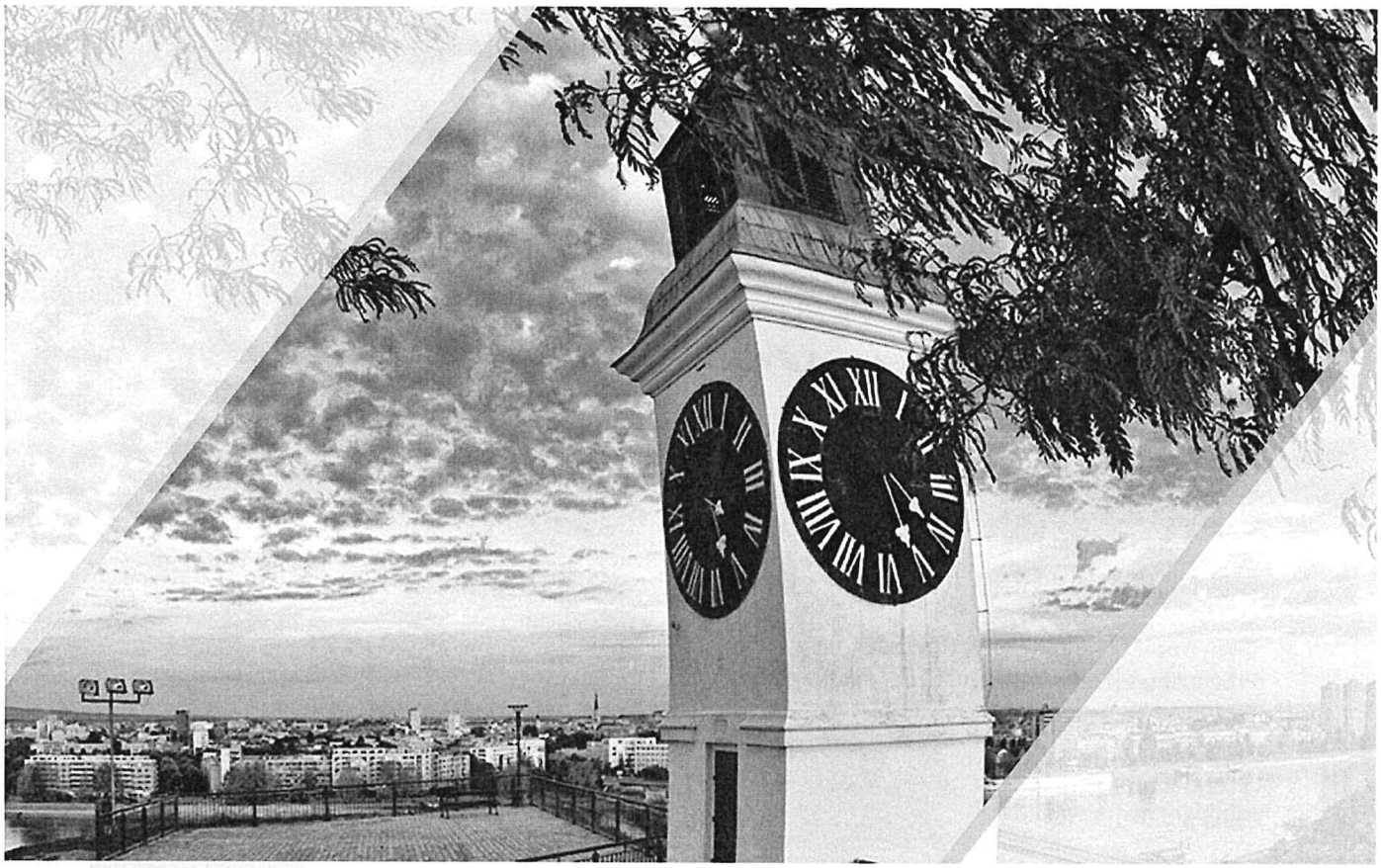
ISWA World Congress
Novi Sad 2016, Serbia

ISWA WORLD CONGRESS 2016



UNITING IDEAS FOR SUCCESSFUL WASTE MANAGEMENT

September 19 - 21
Novi Sad, Serbia

Edited by:
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"Uniting ideas for successful waste management"

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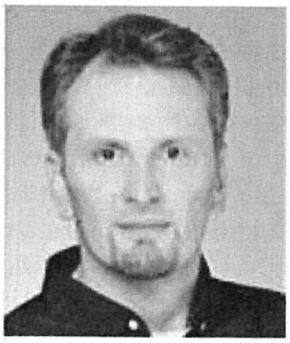

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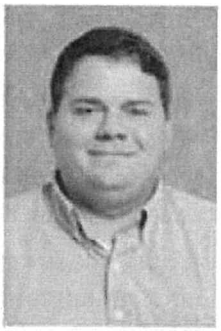

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FOREWORD

The most important expert conference that International Solid Waste Associations (ISWA) organizes is the annual ISWA World Congress. This is an event that brings together in one place and connects all the parties interested in the global problem of solid waste. Every year, representatives of scientific and expert community, representatives of global corporations from this area and political and state officials actively participate in the World Congress. The ISWA Annual Congress 2016 was organized by Serbian Solid Waste Management Association (SeSWA) in Novi Sad, Serbia, September 19 to September 21, 2016.

The theme of this year's conference is **"UNITING IDEAS FOR SUCCESSFUL WASTE MANAGEMENT"**. This is the ideal theme for the ongoing global issues of the waste management or mismanagement. As the world moves toward a more urbanized future, the amount of municipal solid waste (MSW), one of the most important by-products of an urban lifestyle, is growing even faster than the rate of urbanization. Locally and globally, existing solid waste management/mismanagement presents challenges and opportunities.

In one hand, in developing countries, poorly managed waste has an enormous impact on health, local and global environment, and economy. Improperly managed waste (open dumps) usually results in down-stream costs higher than what it would have cost to manage the waste properly in the first place. Moreover, collection efficiency of solid waste is less than 50% in many developing countries, causing spread of malaria, dengue fever, cholera, typhoid, respiratory and skin diseases. In some cases uncollected solid waste causes flooding in many developing urban cities.

On the other hand, *in developed countries, collection is not an issue. The major challenges for waste management in developed countries are: (1)* Lack of available space for new landfills, and (2) In some countries with successful recycling program and with waste to energy facilities, are running out of waste to operate their waste to energy facilities.

Therefore, waste management hierarchy may not be same for all countries and all kinds of solid waste; in other words, **ONE SOLUTION DOES NOT FIT ALL**. Therefore, we need to unite our ideas between developing and developed country needs and provide flexible but robust enough solutions for sustainable waste management.

This year's congress, we have received more than 500 (five hundred) papers for presentations and poster presentation from more than 50 different countries. Reviewing all these papers and posters was a major undertaking and the editors with support of scientific committee spent many hours working on them and finally putting them together as "ISWA 2016 Conference Proceedings".

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CONTENTS

DETERMINATION OF POLLUTANT PARAMETERS IN SANITARY LANDFILL LEACHATE AND SURROUNDING GROUNDWATER

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Abstract

Potential significant environmental impact of landfill leachate migration is pollution of soil, groundwater and surface waters. Hence leachate analysis and monitoring of groundwater quality are important indicators of potentially altered environmental quality. The main objective of the study was determination whether the sanitary landfill in Serbia has a measurable impact on groundwater and soil quality. We presented physico-chemical analysis results for groundwater (four facilities/ piezometers P1, P2, P3, P4) and wastewater samples (leachate collection pool and settling tank). All ground water samples had pH in range 7.1-8.3, chemical oxygen demand (COD) 39-108 mg O2/l, total organic carbon concentrations (TOC) 4.9-21.2 mg C/l. Metals, whose concentrations are statutory in R. Serbia in terms of remediation value and values that may indicate a significant contamination were quantificated. In groundwater samples, concentrations of examined metals generally were below detection limit. For P2 and P3 piezometers, As and Cr concentrations were above the regulatory limit (>60 µg/l and >30 µg/l, respectively). Obtained results show that Ba2+ was the most abundant metal present in all groundwater samples (7.5-157 µg/l), although in concentration range below regulatory limits. Waste water samples pH was in range 7.2-8.9, COD 168-5563 mg O2/l. TOC concentration was in range of 13 to over 1000 mg C/l. In waste water samples, only Cu, Cr and As concentrations were above regulatory limits. In leachate collection pool Cu concentration in two from six samples is above regulatory limit (>75 µg/l), as well as Cr concentration in all six samples (>30 µg/l). As concentration in leachate collection pool in five of six samples was above regulatory limit (>60 µg/l). In waste water samples from settling tank As concentration in one of four samples was above regulatory limit.The obtained results indicate good water quality from piezometers that surround sanitary municipal landfill and suggest the absence of high risks for contamination of soil, surface and ground water.

Keywords: Sanitary landfill, leachate composition, groundwater