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**DISCIPLINES:** Management Science

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**RESEARCH INTERESTS:**

It is no longer a question of scientific debate that research declares our climate is changing. Climate change has significant effects on the physical environment and the industrial aspects of human life. One of the most important and visible impacts of this phenomenon is sea level rise which has impacts on coastal cities and island communities all over the world. Sea level rise also magnifies storm surges which can have severely damaging impacts on different human made infrastructure facilities near the shorelines in coastal zones. In this research we are concerned about the proximity of water systems as one of the most vulnerable infrastructures in the coastal zones because of the impact of stormwater combining with sewage water or source water systems. In Canada, the government has plans to address these issues, but to date, there needs to be further attention to stormwater management in coastal zones across the country. This research discusses the impacts of sever environmental impacts, e.g., hurricanes and storm surge, on the water systems of selected coastal communities in Canada. The purpose of this research is to model coastal zone water systems using the open source StormWater Management Modelling (SWMM) software in order to manage stormwater and system response to storms and storm surge on water treatment plants in these areas. Arichat on Isle Madame, Cape Breton, one of the most sensitive coastal zones in Canada, and Gibsons, British Colombia are the focal point case studies for this research as part of the C-Change International Community-University Research Alliance (ICURA) 2009-2015 project.

**BIOGRAPHY:**

Sara graduated with a Bachelor of Science in Industrial Engineering from the University of Tehran, Tehran, Iran (2010). She decided to move to Canada to pursue her Masters studies in Systems Science at the University of Ottawa in 2010. Sara is married to a polymer engineer, Mohammad, who is also pursuing his Masters studies at the University of Ottawa in chemical engineering. Currently, Sara is working on stormwater management modeling under the supervision of Professor Daniel Lane at University of Ottawa and this research is a part of the C-Change - ICURA project.