

**Main Presenter: Janga Thapa**

**Abstract Title: Trenchless Technology Survey Questionnaire Data Analysis for Canadian Municipalities**

**Email: jbthapa@student.ysu.edu**

## **Phone**

### **Abstract:**

The Centre for Advancement of Trenchless Technologies (CATT) conducted the Canadian Municipal Infrastructure Survey in 2013 – 2014 and 2014 – 2015 fiscal year to obtain current snapshot of trenchless technologies used in water, wastewater, and storm water network for more than one hundred municipalities. The survey was designed to compare the utilization of both open cut and trenchless methods in construction, renovation and maintenance of their underground assets. The main purpose of this research is identifying the current scenario, importance, and demands, along with different factors which play the vital role in selecting and using of the trenchless technology.

The municipalities were categorized as small, medium, and large on the basis of population. The summarized data of 114 questions from the survey was used in the analysis to capture applicability and cost effectiveness of the trenchless technology on construction and renovation/rehabilitation of water mains, wastewater, and storm water networks. The results from 2014-15 CATT survey is compared to the results from 2013-14 CATT survey only for those questions which are common in both questionnaires (designed in the same manner to address same issues).

The results indicated that Cured-In-Place Pipe (CIPP) method is the most beneficial method among the various trenchless technologies. It also disclosed that the trenchless technology is more effective in reducing environmental impact and urban congestions in compare to open cut method. Moreover, the results showed the trenchless method is cost effective for installation of deep pipe networks. Infiltration and inflow were reported as the major waste water network issues (rating- 3.9 out of 5) in the municipalities, whereas reduction in number of water main breaks (rating- 3.9 out of 5) and pipe structural integrity (rating- 3.8 out of 5) were proclaimed as major water mains network issues in the municipalities. Seventy three percent of the respondents mentioned that the cost, lack of appropriate educations and skills are the major barriers to the use of trenchless technology. Overall, survey revealed that the trenchless method is cost effective and environmental friendly method in comparison to the open cut method. However, lack of information, engineering knowledge, skills, trained contractors, separate management group (government policy), and allocated budget are obstacles for the adoption of the trenchless technology.

The study has helped to assess the current state and future projection of the trenchless technology in Canada. Moreover, in order to understand the several issues involved with trenchless technology in a better way, recommendation for designing new sets of questionnaire have been made as an output of this research.