

首都大学東京帰国留学生短期研究支援制度 平成30年度 研究報告書

<外国人研究者プロフィール/Profile>

外国人研究者	グエン・シュアン・トゥン
Foreign Researcher	Nguyen Xuan Tung
国籍	ベトナム
Nationality	Vietnamese
所属機関	交通運輸大学
Affiliation	Unviersity of Transport and Communications
現在の職名	講師
Position	Lecturer
研究期間	4/16 - 7/14
Period of Stay	April 16th - July 14th
専攻分野	橋梁工学
Major Field	Bridge Engineering



研究者写真

受入研究者	村越 潤	職名	教授
Research Advisor	Murakoshi Jun	Position	Professor
受入研究科	都市環境科学研究科		
Graduate School/Department	Department of Civil and Environmental Engineering		

<外国人研究者からの報告/Foreign Researcher Report>

①研究課題 / Theme of Research
<p>Research on bridge damage types in Japan and Vietnam and the modern inspection, maintenance technologies in Japan</p>
②研究概要 / Outline of Research
<p>Chapter 1 Damages of bridges in Vietnam and Japan 1.1. Damages of bridge in Japan 1.2. Damages of bridge in Vietnam Chapter 2 Repairment/replacement methods in Vietnam and Japan 2.1. Repairment/replacement methods in Japan 2.2. Repairment/replacement methods in Vietnam Chapter 3 Modern inspection and maintenance technologies in Japan</p>
③研究成果 / Results of Research
<p>The popular damage types of concrete and steel bridge and their causes in Japan and in Vietnam were introduced. In general the damage types in both countries are almost the same, however the damage classification in Japan is more detailed and clearer than in Vietnam. In Japan there are more than 720,000 bridges and mostly were built during the rapidly economic growth, the 60-70s in the last century, those huge numbers of bridge are 80 times more than in Vietnam with around 4000 bridges as in 2015, most of them are concrete bridges. In Vietnam the ages of bridges varies from 25-35 years old, they were built in the opening economic period of Vietnam, 90s of last century. The main causes of the damage in Japan mostly are salt damage of concrete, alkali-silica reaction and corrosion/fatigue of steel members while in Vietnam the causes are humidity penetration that contain chemical substances via tiny cracks of RC structures and the subjective causes in design and construction process. The common repair method of the both countries are using the epoxy resin for crack and new material that can enhance the strength of the structure such as carbon fiber reinforced sheet and glass fiber sheet, etc. The inspection and maintenance technologies mostly deal with the latest technologies such as fly camera, multicopter or big data processing, etc. toward smart</p>
④今後の計画 / Further Research Plan
<p>Continue to research about the new inspection and maintenance, new material that can apply in the wide range of structures in general and in the bridges in particular. Focus on the inspection method that can apply in Vietnam such as half cell potential method that help to find out the risk of corrosion of reinforcement under the concrete surface or using fly camera to survey the elevated area that the inspector can not reach</p>
⑤東京と海外諸都市との相互理解・友好親善関係の推進についての計画 / Further Plan of Contribution of Strength of Mutual Understanding/Friendship Between Tokyo and International cities
<p>As a lecturer of Civil Engineering Department, University of Transport and Communications (UTC), I will provide modern technologies of inspection and maintenance in the field of Civil works to students and encourage them to go to Japanese universities for study in higher level. As a co-founder of ViJARD (Vietnam – Japan Research and Development center) of UTC, I and my crews have been supported and consulted the Japanese companies in the field of Civil during their first step enter to Vietnamese market by organizing the seminar or events to introduce their products to Vietnamese constructors. As a alumni of TMU in Hanoi, I regularly to hold the talk between TMU alumnies to introduce the new technologies of each member's field, and try to spread the Japanese spirit to community</p>

<受入研究者からの報告/Research Advisor Report>

①研究概要 / Outline of Research
<p>90日間の短期滞在であることから、来日前のメールのやりとりや来日時の打合せにより計画を立てた上で、研究に取り組んでいただいた。当人が収集していたベトナムでの橋梁の損傷や維持管理の実態に関する情報の整理を行うとともに、日本での実態や維持管理技術に関する情報収集を行い、両国の状況についての整理・比較を行った。随時報告を受け、適宜文献・データ等の提供や橋梁現況の説明を行うとともに、調査結果の整理方法について指導を行った。</p>
②研究成果 / Results of Research
<p>両国における橋梁の損傷実態等の比較を通して、損傷の類似性や相違点について認識を深めることができたと考える。その上で、日本の点検・診断手法、損傷発見後の措置方法について調査することで、自国の維持管理手法の改善点や、導入の期待される日本の維持管理技術についての知見を得ることができた点が大きな成果と考える。</p> <p>なお、研究成果については、構造系の研究室ゼミにおいて発表してもらい、意見交換を行うことができた。</p>
③今後の計画 / Further Research Plan
<p>短期研究により一定の成果が得られてため、成果の一部は論文にまとめて、ベトナムで本年11月開催予定の国際会議で発表予定である。引き続き、論文作成の指導を行っていく。また、今後、導入の期待される非破壊調査技術を取り上げ、適用性等の研究を進めていくとのことであり、引き続き必要な支援を行っていく予定である。</p>



研究室での研究風景



指導教員との打合せ