京都大学	博士（地球環境学)	氏名	木村　直子
論文題目	Research on the Correlation between Disaster Preparedness and Ecosystem Conservation -Toward Building a Culture of Disaster Risk Reduction for Local Sustainability-		

（論文内容の要旨）

This research focuses on the correlation between disaster preparedness and local ecosystem conservation among citizens, small medium-sized enterprises, and municipality of local areas in Japan. The objectives of this research are: 1) To understand the current status of disaster preparation, willingness in local ecosystem conservation, and experiences and knowledge of local disasters among residents in a local area, 2) To clarify the correlation between disaster preparation behavior/intention and willingness to conserve local ecosystems among citizens, then eventually, 3) to make recommendations for promoting disaster risk preparedness, namely how to incorporate the local ecosystem conservation in disaster risk management as well as what is to be enhanced, altered, or added in ongoing local disaster management strategies.

Chapter 1 presents the background of the emerging concept of Ecosystem-based Disaster Risk Reduction as well as the linkages of ecosystem, humans, and disasters. Raising the case of District Disaster Management Plan that was newly added in Basic Act on Disaster Management in 2013, this research explains the reasons to target residents, small and medium-sized enterprises, as well as municipality for analysis.

Chapter 2 gives a comprehensive literature review regarding environmental education, natural resources, and disaster risk reduction as well as the preparedness and awareness of disaster risks among citizens. As for preparedness of small medium-sized enterprises, this research focuses on Business Continuity Plan as self-help and provides literature reviews on it.

Chapter 3 is a method chapter. Firstly, this chapter presents the general information about research sites, Shiga Prefecture and Sukagawa city, Fukushima Prefecture. Detail methods used of social survey and analysis follows with the objectives with the reasons why those analysis methods were selected.

Chapter 4 is an analysis chapter on subjective evaluation of local ecosystems using the concept of ecosystem service by youth in Shiga Prefecture. Using workshop approach based on social constructivism, this chapter qualitatively analyzes the group work of matrix-making of the subjective evaluation of local ecosystems and outcomes of group discussions by youth. It summarizes the need to use the two side of nature (benefits and risk) in environmental education for local sustainability.

Chapter 5 presents the results of several statistical analyses (multi correspondence analysis, Cramer's V and logistic regression analysis) on the correlation between disaster preparation behaviors by citizens in Sukagawa city, Fukushima Prefecture and their perception to local ecosystem conservation. Correlation was observed between some preparation behaviors and perceptions to local ecosystem conservation. The results of logistic regression analysis also showed some positive occurrence probability out of local ecosystem conservation with significance.

Likewise, Chapter 6 shows the statistical analyses results of the correlation between disaster preparedness and local ecosystem conservation in case of small and medium-sized enterprise. With the same methods used in Chapter 5, this chapter presents the results of Business Continuity Plan formulation by small and medium-sized enterprises in Sukagawa city. Formulation of Business Continuity Plan showed the strongest association with pro-environmental actions at office, which was stronger than business size of capitals or the number of employees. Enterprises that have formulated or are formulating Business Continuity Plan also installed environmental management system such as ISO14001. This chapter summarizes that more dissemination of BCP, collective action for formulation, and philanthropic viewpoint for Business Continuity Plan as a contribution to society.

Chapter 7 takes a look at strategies and policies of both disaster risk reduction and local environmental

conservation. Focusing on place-names and past disaster experiences in the city, this chapter deals with findings from document analysis and interviews to city officials. Based on local document on a village-name, a result of geographical analysis with ArcGIS is also provided to show how place-names can be a learning source of underlying disaster risks. This chapter summarizes that place-names are to be more used not only for promoting preparedness but also a part of local culture. The chapter asserts that transversal axis to incorporate ecosystem-based approach into ongoing disaster management strategies.

Chapter 8 provides the discussion and how the key finding of this research can contribute to the future disaster risk reduction, especially the four priorities given in the Sendai Framework for Disaster Risk Reduction with the special focus on local ecosystems.

Chapter 9 gives the conclusions of this research. Recommendations on how to incorporate local ecosystem conservation into ongoing systems and management related with disaster risk reduction. Limitation and way forward are presented before closing.

（続紙　２）

（論文審査の結果の要旨）
　　急速に高齢化が進む日本社会は，自然災害に対する農村地域の脆弱化が加速している。農業および地域の担い手の減少と高齢化により，地域対応力が低下しつつある中，近年，地球温暖化による気候変動により洪水や豪雨，さらには大規模地震等に見舞われ，農村地域は大きな被害を被っている。今日，農村地域の特性を踏まえた防災・減災は大きな課題となっている。
　　本研究は，生態系を活用した防災・減災アプローチ（Ecosystem-based disaster risk reduction；Eco-DRR）を我が国の農村地域に実装するために、地域住民および地域内の中小事業所を対象に，災害への備えと生態系保全志向との相関関係を明らかにしたものである。対象地域は環境教育の実績がある滋賀県（守山高校）と度々水害を経験してきた福島県須賀川市である。本論文で学術的に評価できる点として，以下の４点が挙げられる。
　１．構造構成主義的な観点から，高校生向けの新たなワークショップ手法を提案し，その有効性を明らかにした。参加者はグループワークで生態系サービスの21項目を重要性と親和性（親しみやすさ）のマトリクス上に配置し，その主観的な評価結果を彼ら自身が解釈し，理由付けすることにより，環境に対する深い理解へといざなうことが期待できる手法である。
　２．須賀川市民を対象にしたアンケート調査データに基づいて，災害への備えの行動と生態系保全志向との間に有意な関係性があることを明らかにした。具体的には，災害への備え行動が，地域生態系の保全志向，環境配慮行動への意欲，間接的な災害経験，災害リスク削減に関する個人の知識量などに規定されていることを明らかにした。
　３．事業継続計画（BCP）は、災害時に彼らの事業を復旧・継続するための計画であり，事業所が用意するべき災害の備えとして重要な行動計画である。須賀川市の中小事業所を対象にしたアンケート調査データに基づいて，BCPの策定を左右する要因相互の構造を明らかにした。事業所の資本金，従業員規模，業種などに加えて事業所の地域環境・地域社会との関わり合いにも大きく影響されることを明らかにした。
　４．これらの成果を踏まえて，農村地域の特性に配慮しつつ災害への備えを強化するための提言をまとめた。
　以上のように、本論文は，詳細なアンケート結果を分析し，災害への備えと生態系保全との間に有意な関連性があることを明らかにするとともに，そのような関連性を踏まえた改善策を新たに提案した。これらの成果は，農村地域で防災・減災に係わる実務担当者に有益な知見をもたらすとともに，地球環境学，農村計画学，災害リスク管理論の発展に寄与するところが大きい。
　　よって本論文は博士（地球環境学）の学位論文として価値あるものと認める。
　　なお，令和２年６月８日、論文内容とそれに関連した事項について試問を行った結果、博士（地球環境学）の学位を授与される学力が十分あるものと認めた。

　要旨公開可能日：　２０２０年　１０月　　１日以降