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Transdisciplinary ecosystem-based approaches to flood risk reduction supported by traditional ecological knowledge in Mikatagoko Lakes, Japan

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Rainfall-induced floods and landslides have occurred and caused devastating impacts in recent years in Japan, and adaptation to natural disaster risks is a key to the sustainability of local communities. Traditional ecological knowledge in Japanese communities exists abundantly, such as those in disaster risk reduction and natural resource use, and it has been passed down from generation to generation. These traditional knowledge and skills have been used to benefit from nature's gifts or ecosystem services as well as to avoid devastating impacts from natural disasters. Collaboration and cooperation by diverse stakeholders are crucial for recognizing and utilizing traditional ecological knowledge in actual solutions and actions. In this presentation, I introduce how traditional ecological knowledge has been used in disaster risk reduction in Mikatagoko Lakes area located in Fukui Prefecture, Japan. Rainfall-induced floods occur frequently in this area, but traditional land use helps to reduce inundation damage of houses and conserve biodiversity and ecosystem services including local food culture. Embankment built around the lakes has been renovated not only for flood risk reduction but also for biodiversity conservation, also supported by traditional ecological knowledge in this area. The Mikatagoko nature restoration committee, in which diverse local stakeholders participate and collaborate, has played a significant role in these actions and solutions. Our experiences suggest that transdisciplinary ecosystem-based approaches contribute to the sustainability of local communities and the collaborative platform among local stakeholders is important in taking advantage of traditional ecological knowledge in actual solutions and actions.